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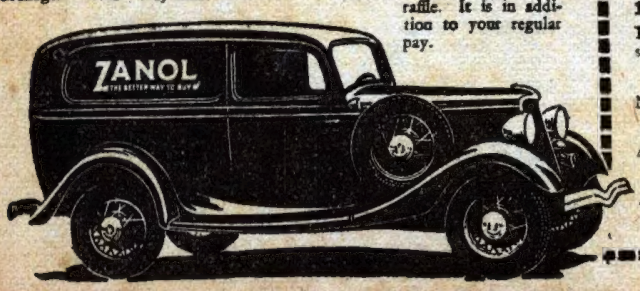

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Science Fiction

Vol. 8 NOVEMBER, 1933 No. 7

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Our Cover

depicts a scene from the story entitled "When the Univrse Shrank,'" by J. Lewis Burtt, drawn by Morey.

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AMAZING STORIES

THE MAGAZINE OF SCIENCE FICTION

VOLUME 8

NOVEMBER, 1933 No. 7

T. O'CONOR SLOANE, Ph.D., *Editor*

Editorial and General Offices: 222 West 39th Street, New York, N. Y.

Extravagant Fiction Today . . . . . Cold Fact Tomorrow

Mechanism and Energy

By T. O'Conor Sloane, Ph.D.

THE production of manufactured products, in old times, was largely the work of the human hands and muscle, with a certain expenditure of brain, but of late years machinery has gone far towards displacing the workman from his old-time job. He has less use for brain and for technical training than ever before.

The automobile is a most striking example of this feature in the development of the world. The actual construction of a car in the great factories is far less matter of the human work than it ever was before, the great row of material going down along the travelling way, with a lot of workmen by the sides, each one doing the samee thing day-in and day-out, is a very impressive illustration of this. It has the unpleasant suggestion that the man's intellect and character will become mechanized, so that after a few years he will be little more than a machine. As the world is now, there are a limited number of men who are enormously wealthy and what we may call an unlimited number who are enormously poor. Benevolently disposed people consider that this is all wrong and that every man should have his comfortable home and some would even say that he should have his automobile, although others think there are too many of them now on our roads.

For thousands of years clothes were made by hand, the fabric was cut out and sewed together by hand, using the smallest tool that humanity employs, namely, the needle. But at last some inventor got the happy idea of putting the eye of the needle near the point and if he had gone no further than this, hand-sewing might have been revolutionized. But the needle

with the eye near the point was destined and invented for use in the sewing machine, and now after years and centuries of hand sewing, the sewing machine is universally used. It even has seemed too humanistic to operate the treadle by the feet, so a little electric motor is attached, and all the operator has to do is to guide the material on its course beneath the needle.

There was another important change. The needle was carried at the end of a vibrating arm pivoted about 8 inches from it. The needle therefore followed a curved path and had to be curved itself so as to represent an arc of the circle described by the end of the vibrating lever.

Here, trouble arose, for crooked needles naturally had to break, so in order to employ a straight needle a reciprocal rectiliniar motion was given to it and the thin straight needle would go through an astonishing thickness of material without fracture.

It would be a simple matter to fill the pages of this magazine with precisely such forgotten incidents as these. When you buy an automobile you never think of the way it is put together, going down the long path with the workmen each doing his one little thing upon it. You buy a suit of clothes, but you never think that about a century ago the sewing machine was unknown, and that the needle perforated at the end was all that made the sewing machine possible. Through the whole world of mechanics and technology there is the same story—there was the invention of some little thing which in time revolutionized a whole industry, and so we say the world goes forward.

But if we are doing so much by machinery, as to feel that we are changing the whole vision of life, what is the fundamental thing needed to carry on the game, to keep the robots going, and to threaten to throw all mankind into idleness because a machine will do the work of a hundred or more men? Whether good or bad, machinery is here to stay. It will be constantly improved, will be more and more widely used and even the strange-looking blue eagle will be unable to produce any definite effect upon it. In a way, we may feel that we have more productive power in our hands than we require, and the restricting the area of cultivated ground and the plowing under of crops is a strange exhibition of a want of balance in the world.

But the world is going on with machinery. More and more it is going to be used, and in order to use it, back of it there must be a supply of energy and so far energy has always been, in a sense, the gift of nature. Between nature giving us energy and machines giving us products, mankind seems to be getting into the position of doing little or nothing for itself.

Back of everything is energy. The machine without it is useless.

We have now got into the position of using up fuel, oil, coal or natural gas, being the principal things, with a large amount also of power from waterfalls. If we are really making any kind of an inroad on the future supplies of fuel, and this is rather an appalling thought, what will the future do for power to run its machines? Natural sources of fuel are being exhausted. This is true irrespective of how much oil and coal and natural gas Mother Earth has locked up in her bosom. We are burning up oil and coal and natural gas to produce energy, and are distributing it by various means to all sorts of units, from the electrically-driven sewing machine to the turbine developing thousands of horsepower. The fuel which turns the gigantic dynamo through one revolution will never turn it through another, because it has been annihilated in its function of a producer of energy. When you burn coal, or oil, or

natural gas, it is simply removed from the face of the earth, and there is that much less left for posterity.

Now it so happens that as the use for machinery increases, the discovery of sources of energy seems to keep pace with it, but it is almost a certainty that unless a change occurs these natural sources of fuel energy will be exhausted. Of course we do not know how long a period will elapse before all fuel is consumed.

It is an open question as to how many people realize that in former days vastly larger proportions of the world's energy was supplied without any degree of exhaustion; and the powers as used were always there year after year and there was no dread as we may call it, that future generations would be stranded on the shore for lack of fuel. In other words, our predecessors used natural cosmic powers for their work, and to-day those same powers are at our disposal, but they are going into a greater and greater proportion of disuse, except as far as the use of streams for driving water motors is concerned.

The motion of air, as exhibited in winds, for generations past has been used for the development of power. It drove windmills all over the lower levels of Holland so that the very existence of the polders, as the great fields below water level are termed, depended on the wind driving the windmills that pumped out the sea water. It seems much more logical and in the line of good mechanics to drive a ship across the ocean by the wind rather than to expend thousands of tons of coal or oil to force her through the water. The intermittence of the wind, its uncertainty and the limitation of the speed which it could give to a vessel under the most favorable circumstances, are what put sailing vessels into the discard. In the wind we have one of the great cosmic powers, which in proportion to the use made by man of other powers is going more and more into oblivion.

And now we come to water power. Here, by damming rivers, artificial water falls are obtained which can drive machinery and produce power and which do produce it in enormous quantities. The operation is so automatic that a plant may take care of itself to all intents and purposes, and here we may feel that engineers are doing the right thing. The sun is raising the water up to the level of the clouds and it falls on high ground and feeds the natural or the artificial water falls, as they may be termed, so that what we are using is the power of the sun and what we call hydraulic power is really sun power. The water is a mere incident in the process.

Now the sun and the moon together produce another enormous quantity of energy on the earth, and this used to be very nicely utilized for mechanical power and the driving of machinery, when there were less extravagant demands for energy. This is tidal power. Many elements enter into the production of tides. In some places such as Liverpool, the Bay of Fundy, and Passamoquoddy Bay, they rise and fall many feet. They do this with great regularity and in many places its enormous power in one sense is begging man to use it. But he prefers to dig down into the earth or drilling holes and sinking pipes into it, and gets his fuel therefrom, while the tide all over the earth is ready to deliver power to him. Projects have been worked out for utilizing the tide in Passamoquoddy Bay and in the Harbor of Bristol and in many other places. Our forefathers used to put up dams with tidal gates and impound water at high tide. This was used to drive mill wheels at low water. In a sense in doing this, they were far ahead of us. In our neglect of tidal power that is waiting to be used, it would seem that

we are committing a sin under the laws of mechanical energy, for waste and low efficiency is the great crime in mechanics. What greater crime in this sense can there be than letting a rise of tide of thirty or forty feet affecting thousands of tons of water, which is waiting to be utilized by man in localities from one end of the globe to the other, go to waste? And this again is not hydraulic power in its origin, but just as before it is sun power along with moon power added.

It presents a very impressive picture of the earth that we are living on, this wonderful sphereoid, that wanting to drive machinery, we have the sun and moon to do it for us. If we chose to use them, we could make the sun and the moon do far more for us than they do now, because we virtually are neglecting the enormous power of the tides. Imagine the power developed in the Bay of Fundi by the tide, not utilized by man. The calculations show enormous amount of power going to waste there every six hours of falling tide.

In Switzerland, there are many waterfalls whose power is utilized and these derive their flow in many cases from melting glaciers or masses of ice. The water was picked up by the sun as a gas; by changes of temperature and climatic conditions was condensed in the air and formed water again, and fell as showers on high ground. Switzerland is living to a great extent, as far as power is concerned, on the sun and this applies to other regions—Norway is doing it, Ireland is developing power on the Shannon River and if she knew what to do with it when she got it, Iceland could develop enormous horsepower with her glacial cataracts.

This class of power derived from snow-covered mountains and from glaciers is fancifully termed white coal. Where the flow of a river is made to turn waterwheels and give power, the imaginative engineer sometimes calls it green coal. Tidal power, such as recently suggested for Passamoquoddy Bay and for the harbor of Bristol, England, is known as blue coal.

When our forefathers utilized windpower in their windmills and waterpower of tide or streams, the missing element was electricity. To round out and complete the mechanical cycle, storage of power was needed. Electric motors and generators go back for but a few years in their history. Electric motors have wonderfully high efficiency, going well over 90 per cent, but in most tidal constructions, they would only be producing power part of the time. It would be perfectly simple to impound some of the power in storage batteries while the generators were active, so as to have a continuous delivery of current.

There are other sources of sun power. In the tropic ocean if we go down deep enough with our thermometer we will find the water extremely cold while it may be warm on the surface. The attempt has been made to utilize this difference in temperature for the production of power, but it proved that the amount produced was too small to be of economic value. Many efforts have been made to use the radiated heat of the sun, and some degree of success has been attained. But tidal rise and fall is waiting to be used by man. The water power plants use the smaller part of the cosmic energy, as it may be termed.

Coal may be defined as fossil trees and vegetation. The original vegetation depended upon sunlight and rain for its growth. Petroleum may be in the same order. There is an impressive difference between it and coal, so that there is room for considerable theorizing or even surmising as to the origin of petroleum and natural gas. But it is reasonably safe to

say that in their origin both were dependent on the action of the sun. Plant life always required heat and actinic rays and moisture. As the giant vegetation of the carboniferous and contiguous eras absorbed the moisture of the soil and of the humid air and heavy rainfalls, the "mechanism" of the supply was effected by the sun. The very production of wood fibre needed sunlight. We are burning coal in great quantity, which material was produced by the action of the sun on plant life. Forestation, to the value of which this country is only now fairly awakening, depends also on the sun. We are making great use of the luminary and are calling on it more every year to do our work.

The moon is being neglected in its function, shared with the sun as a producer of tides for these are now neglected.

Wave motors have been experimented with and are used to operate sound producing buoys. But this use is insignificant. Waves are produced by wind and tidal currents, so that we may say that whistling buoys and bell buoys which give warning signals to ships, are operated by the very forces which wrecks the vessels, and which forces come from sun and moon.

Acceleration

IN many stories which have appeared in our magazine the endurance of acceleration by the human system plays a part. We quote from the columns of the N. Y. *Herald-Tribune* of August 10th of the present year, the following interesting communication touching on the subject of rapid ascent, with its ensuing change of atmospheric pressure and what the writer of this interesting letter terms the "terrific acceleration and deceleration" incident to it.

SWIFT LIFTS IN THE RUHR

To the New York *Herald Tribune*:

In to-day's *Herald-Tribune* under "Current Happenings in Science" is a report about elevator speeds in connection with tests in the R. C. A. Building. The writer was employed for a time in coal mines in the Ruhr. There the allowed maximum speed for hoists in material transport is twenty-five meters a second; for human transport the figure is twelve meters. But even those speed limits are sometimes bent a bit under the stress of rapid transport.

Twenty-five meters a second is almost 5,000 feet a minute and the writer has traveled many times that speed up and down for 2,000 and 3,000 foot stretches. There is quite a kick in traveling that fast up or down for anybody who can stand the terrific acceleration and deceleration and the sudden change in air pressure, which is hard on the eardrums.

FREDERICK G. HEHR.

Sayville, L. I., Aug. 6, 1933.

THE END

Whisper of Death

By HARL VINCENT

This ingenius story by Harl Vincent departs a little from his usual vein and gives us a strange picture of an affliction brought upon the earth and how it was coped with. There is an element of tragedy and romance in it, and we are sure that our readers will be glad to read this narration based upon a physical phenomenon. We often feel that one of the criteria of merit in a story is its ending. We truthfully recommend to our readers the exciting and unexpected ending of this narration.

Illustrated by MOREY

CHAPTER I

Silence in Manhattan

AS he came up out of the subway at Wall Street, Wayne Gordon was assailed by a feeling of sudden bewilderment. A sharp twang as of the snapping of a taut cable had echoed in his ears. Then hollow silence swept down. No ordinary lulling of the usual traffic noises of the financial district, but complete absence of even the slightest of sounds. It was incredible, ghastly.

Wayne's head jerked up in astonishment. A moment before there had been the mounting roar of the express train as it pulled away from the station platform below; the shrill hawking of a news vendor at the head of the stairs; raucous toots of warning from automobiles in the street. But now—it flashed across his mind that he had lost his hearing in some swift and unaccountable fashion.

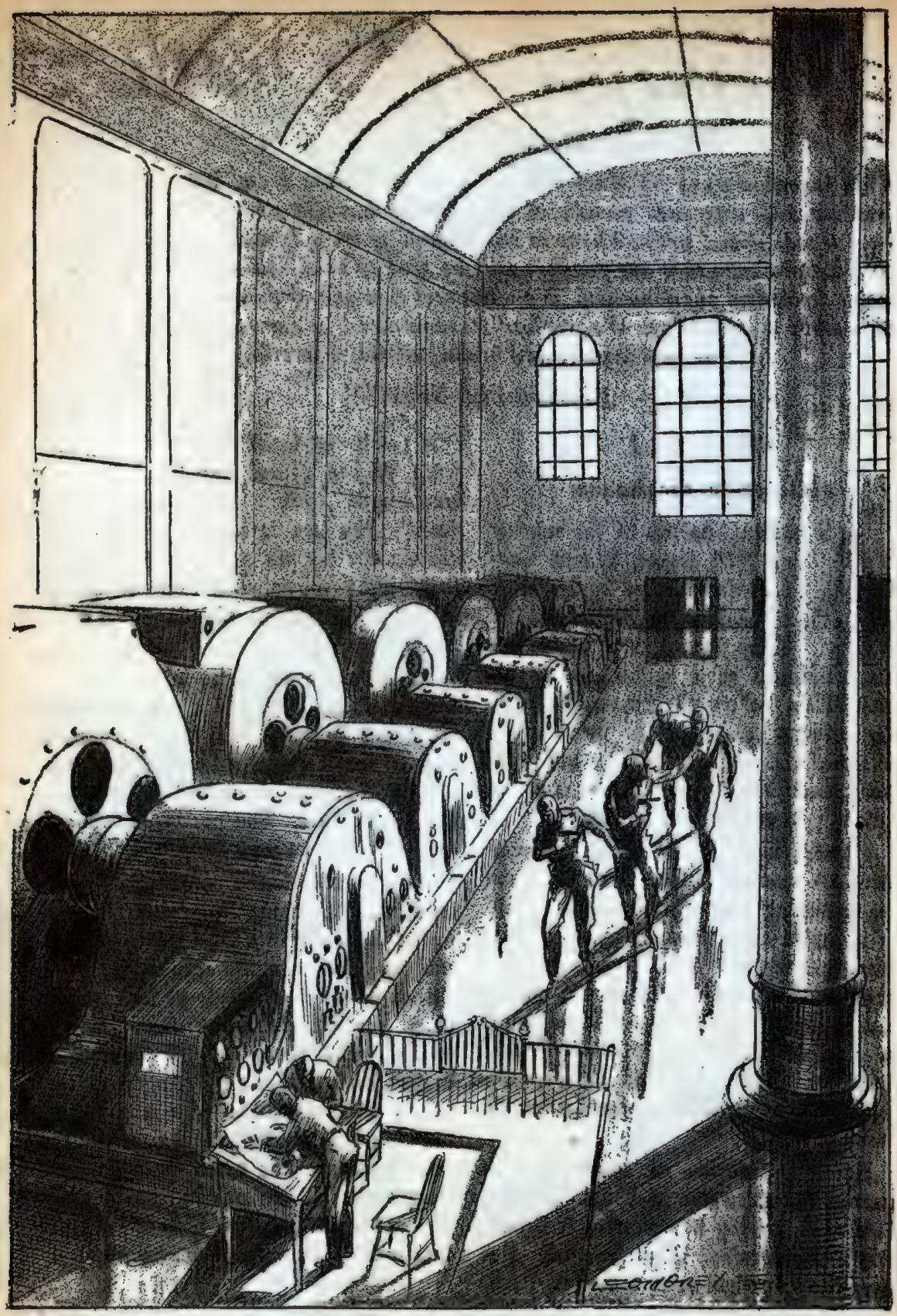
Noontime crowds of office workers packed the sidewalks as usual. Surface cars were moving soundlessly on Broadway; taxis cruised near the curb. But over the scene had come a curious slackening of pace, as in a slow motion-picture. Pedestrians were seen to falter in their steps, many stopping uncertainly to stare with jaws sagging.

A portly red-faced man, stumbling toward Wayne, peered into his face with terror-wide eyes. "God! I've gone deaf." His lips formed the words unmistakably, but no sounds accompanied their jerky movements. Wayne shook his head in negation, pointing to a near by group.

"It isn't our ears," he said. "Something's wrong with the air." Resonant vibrations in chest and nasal passages assured him that he had actually spoken, but he knew his voice had not reached the other's ears. The portly one moved on as if in a daze.

A woman, tottering on her feet at the curb, went suddenly white and slumped to the pavement in a dead faint. A taxicab, about to turn the corner into Wall Street, halted so suddenly as to leave the black marks of sliding tires on the asphalt. But there was no screech of brakes, no horrified cry from the driver, whose face contorted with a shout of warning that reached no ear. Only the ghostly silence and a sea of frightened, staring faces. No one moved to assist the woman whose limp body lay a scant two inches from the front wheels.

THEN Wayne was swept along in a sudden rush of panic-stricken humanity. Blind fear of the unknown and the frantic desire to flee had seized upon



Wayne, on familiar ground now, led the way to the room of the humming generators. Only two men were here and these were at the engineer's desk, their heads bent over a blueprint. It was a simple matter for Carson and Smith to creep up behind them.

the mob. The resulting confusion was indescribable. But eerily soundless. It was like a riot scene of the films in the days before the talking picture came.

From office building entrances stampeding thousands streamed into the already crowded streets. Young hoodlums, banding together, formed flying wedges, driving ruthlessly through the press toward destinations unknown. Fists of men were flying. Frail girls, grown hysterical, fought like young tigresses, with teeth and nails, to save themselves from crushing and trampling. Faces upraised, some white with fear, others, purple and with veins swollen from desperate efforts to voice shrieks or curses, were there. But not so much as a whisper of sound flung back from the towering skyscraper walls.

Over at the end of Broad Street a green-painted armored truck was seen to lurch erratically through the mob in front of the Sub-Treasury. Obviously out of control, or driverless, it mounted the curb, plowing its way to the wide stone steps where it crashed amid a welter of unfortunate and desperately struggling humans. Radiator and fenders were crumpled—noiselessly. The agonized cries of a dozen injured reached no mortal ears.

Then, as suddenly as it had come, the blanket of silence lifted. A terrific bombilation of sound smote Wayne's eardrums with the force of an explosion. The din of the city rose anew, amplified a thousand times beyond normal. Wild clamorings of a frantic populace echoed from the cliff-walls of buildings.

A momentary lull followed, as realization came to excited thousands that the weird phenomenon had spent its mysterious energy and was gone. Then an uproar came up from the streets of downtown New York, such as had never greeted a returning hero or even the World War armistice. Unreasoning, living only in the moment and knowing naught save that this incomprehensible thing no longer menaced, the multitude went as mad with exuberance as it had been mad with terror. Clanging of ambulance gongs and the sirens of police cars served only to swell the hullaballoo of jubilation.

Wayne Gordon, now carried along in the howling mob, now bucking its perverse countermovements, eventually succeeded in reaching the new Airways Building where a helicopter cab might be hired.

TEN minutes later he alighted on the mid-town landing stage over Central Park West, was whisked down to the street level in the voice-controlled automatic elevator, and proceeded at once to Bret Garrison's place in West Seventy-fourth Street.

His friend greeted him in the library of the old brownstone front he had maintained so obstinately against the encroachment of the more modern structures that now reared their imposing metal façades throughout the mid-town section. As usual, Bret's shirt sleeves were rolled above the elbow and a laboratory apron hung loosely upon his spare frame. His blue eyes twinkled when he observed the broken crown of Wayne's straw hat and the disheveled appearance of his clothing.

"Must be you got mixed up in the ruckus downtown," he grinned.

"Did I! You should have been there."

"Yes, I saw. It was on the television newscast about as soon as it started. A panic, sure enough."

"Oh, it came through the newscast?" Wayne turned from the mirror where he had been trying vainly to restore a semblance of neatness to his disordered cravat and crumpled collar. "No sound though, was there?"

"None—from there. Only the image

flashes." Bret's gaze was sober now, speculative. "No noises at all excepting some rot of Doc Collyer's that the central announcers handed out. He issued a statement to United Newscasts; tried to explain the thing as a natural phenomenon. I switched off my visiphone."

Wayne stared. He had expected his friend to expound elaborate theories that would have to do with strange meteorological conditions. It had not occurred to him that any other explanation was possible. "You mean this silence was produced artificially!" he exclaimed.

"Something like that. And that isn't the worst, is my idea."

"But why? Why should anyone——"

"That's just it. Come into the workshop, Wayne."

BRET GARRISON, a bachelor of independent means and an ardent devotee of science, had here assembled what was perhaps the best equipped laboratory for electronic research in the United States. Although a frequent visitor in the place, Wayne always viewed its cluttered array of mechanisms with something of dismayed awe. He was stopped now by his friend before an apparatus he had not seen before.

"Twenty years ago," said Bret, "Millikan, Lange and Brasch, and others succeeded in exploding the atom. But they hadn't any——"

"I thought you'd be interested in my experience downtown," Wayne broke in, "That's why I hurried up here. I didn't expect one of your physics lectures."

"I am interested, but first I want to show you something that may have considerable bearing on this silence thing." As he talked, Bret was inserting a pellet of yellow metal in a crucible which he then placed in the machine. "Let me see your watch," he demanded, for no apparent reason.

Wondering, Gordon handed it over, noting with a start of surprise that its case was rough and blackened. "Why, I hadn't seen that," he choked, "It wasn't that way——"

"No—not before the silence," drawled Bret. "This was a gold-filled case. Not cheap, you understand—twenty year and all that. Layers of gold over a base metal, and these layers have vanished. Removed during the silence."

"Rats! Without my knowledge?"

"Obviously. Now look; see if this'll sink in." Bret closed a starting switch at the side of his apparatus. There came the high-pitched note of a motor-generator and the glowing of many vacuum tubes. The pellet of metal in the crucible glowed an eery sputtering green.

The experimenter moved back from his apparatus, taking an ancient revolver from a nearby drawer. "It's loaded with blanks," he explained hastily. Aiming it at the floor, he pulled the trigger.

Wayne jumped at the roaring report. "Hell's hinges!" he barked, "Might as well kill a fellow as scare him to death."

Bret smiled bleakly. "Now—get this."

He moved close to the apparatus with the glowing crucible, firing again. Wayne saw the flash of hot gases spurting from the muzzle of the little weapon, but heard no sound. Again Bret pulled the trigger and his revolver spat flame, jerking up in his hand with the recoil. As before, there was not the slightest report.

"Good Lord!" gasped Wayne. "Near the machine it's like the silence downtown. Some force you've got there does the same trick. I'd sell my shoes to buy the secret."

"You don't have to," grinned his friend, "I'm letting you in on it *gratis*." He switched off the power from his mechanism and withdrew the crucible with a pair of tongs. "See now?—it's gone. That was gold, that tiny pellet. And I've disintegrated it. Atoms were torn asunder, resolved into protons and

electrons. Annihilated!"

Wayne saw that the crucible was empty. "Man alive!" he husked. "My watch—I see it now. This same force, or one like it, was what caused the silence down there. "Why——" He paused, aghast at the possibilities that suggested themselves.

"EXACTLY, and that isn't all." Bret's long fingers were toying aimlessly with the straps of his apron—sure sign that he was disturbed. "Wayne," he added, "Commissioner Gill called me just before you arrived and told me that more than a billion in gold has vanished from the sub-treasury vaults. And the Assay Office—the banks—all through the financial district it is the same story. Billions in gold—every last ounce of it gone. They're keeping it from the newscasters and papers."

The private call of Bret's visiphone was shrilling insistently. Wayne Gordon could only stare as his friend moved to answer it.

A square-jawed face with gimblet eyes and bristling iron-gray brows flashed in the viewing disc as Bret flipped the receiving lever of his instrument,—that of Anthony Gill, New York's harrassed Commissioner of Police.

"Hello Garrison," he rumbled. "Want to give you the latest news first hand. Before the newscasts ball things up."

"I told you before," said Bret wearily, "that I don't want to mix up in police matters. You're trying to make a damn detective of me, Tony, sure enough."

"When you hear this," the other returned, "you'll want to be in on it. Listen, my boy, we've eighteen corpses in morgues and hospitals, so far. Nary a mark on any of 'em. Not cases of injury in the panic, these eighteen. All are from the area of silence. From the banks—clerks and such—those who were nearest the vaults when it happened. Dropped in their tracks, they did, and never got up."

"Weak hearts?"

"Not according to the coroner. His doctors call it apoplexy."

"Nonsense." Bret was aroused now. "Get some other opinions, Tony. And, say—get me a medical report on the condition of the brain cells of the victims."

The Commissioner permitted himself a faint smile. "You'll help us out, then?"

"Oh, shut up. I'll help if I can—you know that—but I won't do any of your dog-gone sleuthing for you. Which reminds me; have you any clues at all?"

"Nary a one, my boy—nothing. No one saw or heard anything or anybody. Most of the vaults were closed at the time and remained so through it all; absolutely unharmed. There wasn't even a suspicion of robbery till later. But the bullion had vanished all the same . . . huh . . . er . . ."

Gill's anxious face turned sharply from the viewing disc as one of his office aides pressed him for attention. When he looked out at Bret once more his cheeks had drained of all color.

"God!" he groaned, "Philadelphia, too—word just came in. Same thing there. The Mint—Federal Reserve Banks—everything. See you later, Garrison."

Abruptly the visiphone screen went blank.

CHAPTER II

Bret Moves

FOR the briefest instant Bret Garrison stared uncertainly at his friend. Then he became a whirlwind of energy, his long legs flying as he scudded from the laboratory and into the hall. He yanked off his apron as he ran, and was up the stairs two at a stride.

"Get out that derby you left here last

spring," he called back. "We're going places—fast. This thing is much bigger even than Gill imagines."

Wayne grinned appreciatively. Only Bret would think of a detail like the broken straw at a time like this. Then Wayne sobered. It was increasingly evident that the strange silence which had first swooped down on the Wall Street district was man-made. The swiftly following repetition of the thing in Philadelphia left little room for doubt. And such results! Bret hadn't explained in detail and Wayne was still hazy in mind as to what the thing might portend. Gill had obviously considered it a stupendous and mysterious robbery. But it couldn't be that. This force of Bret's—which must be similar to the other—caused the actual annihilation of atoms. The small globule of metal in his crucible had been utterly consumed. And yet . . .

Wayne's thoughts were interrupted by the return of his friend, who was dressed for the street. "Where to?" he asked him.

"Washington," said Bret shortly. "One-thirty air liner. We'll have to hustle."

Knowing better than to bother with a lot of questions, Wayne kept silence as he followed the lean scientist from the house. Bret would open up regarding the matter in his own good time.

Dissimilar as they were in many ways, these two men were nevertheless inseparable companions. Bret, not yet forty, was hailed in many quarters as the foremost scientist of the time. An insatiable student and experimenter, he yet managed to get about a great deal and had engaged in numerous adventurous expeditions in the pursuit of scientific knowledge. A fearless proponent of theories at variance with those generally accepted, he was often at loggerheads with his confreres. Although subject to fits of deep abstraction in which he was testily uncommunicative, he was, as a general rule, companionable and intensely human. He was a tall and big-boned man, slightly stooped, with narrow clean-shaven face and deep-set blue eyes. What hair he had was light in color—a fuzzy fringe across the back of his head that reached just above his rather prominent ears. Inevitably his trousers and coat hung loose and baggy on his angular frame, though he patronized only the best of tailors.

WAYNE GORDON, a few years younger, was his direct opposite both in natural inclination and appearance. Irresponsible and frankly disclaiming any serious ambition, he had engaged in one occupation after another without much enthusiasm over any. "Newscast" reporter, radio operator, football coach, automobile and aviation mechanic—he had tried his hand at all of these and more. He was no student at all. In the days of his college athletics he had been a three-letter man, and had managed to keep himself in good physical trim ever since. He was just above medium height, stocky and erect. A spirit of good-humored mischief seemed always to lurk in his flashing black eyes. And he had plenty of hair, a wavy dark mane that was Bret's envy. His round, good-looking face was marred only by a narrow scar on the left cheek which showed white when he was excited or angry. For Bret Garrison, Wayne would go through fire and flood.

Now, in the cabin of the Washington liner, no words had passed between the two men for many minutes. The big helicopter ship, with nearly a hundred passengers aboard, had climbed to the thin air of the stratosphere* and was speeding toward its destination at better

* Stratosphere. The height to which the atmosphere extends is not definitely known, but it has been found that our air can not show a definite pressure at an altitude above 50 miles. By various means, we know that two distinct regions exist in the earth's atmosphere; the troposphere, which is approximately 10 kilometers in height, and the stratosphere, which extends to

than five hundred miles an hour. In another twenty minutes they would be set down in the nation's capital.

Bret turned suddenly to his companion. "Did you hear anything at all during that silence?" he asked. "A whisper or murmur?"

"Why—why no." Wayne jerked himself erect in the seat. His friend was about to open up.

"Strange. No faintest sound. You sure?"

"Why yes—no more than your revolver made. You didn't expect there'd be, did you?"

"W E-L-L. Perhaps. Something different about this though, sure enough." Bret lapsed once more into his brown study but only for a moment. "And," he went on, "you know, Wayne, this is 1952. Science has progressed with amazing strides during the past several decades but mankind has changed very little. Fundamentally, I mean."

The younger man stared. "You kidding me?" he demanded. "What's that got to do with this?"

"Everything, I believe. I'm only thinking aloud. Trying to get orientated. You see, Wayne, almost everyone wants money. Our lives are spent in various kinds of effort to accumulate it. Most of us, I mean,"—as Gordon grinned—"And some will go to any limit in this effort. Individuals. Nations."

"But this gold—disintegrated. What good is it?"

"Sa-ay, wait a minute. You're getting ahead of my story. This is a time of greatest prosperity for all the world, but mostly for our own country. Of the total gold-holdings of the nations, more than ten billions are right here in the vaults of our Federal Reserve and other depositories. Gold is the standard of exchange almost universally now and its removal or destruction in quantity would involve . . ."

"Your pardon, Mr. Garrison." A ship's radio engineer was beside them with a plug-in visiphone instrument. "Call from New York, sir. Commissioner Gill, I believe."

T HE conversation was brief. Bret had asked for a report on brain examinations of the silence victims. Gill had it; he had located Bret by calling his housekeeper. All brains had shown extensive destruction of cells in the medulla oblongata. Whatever that might be.*

"By George!" Bret cut in at this point. "I was right, then. And the result might easily be mistaken for apoplexy. Thanks, Tony."

"You mean that's all you want to know?" Gill's bushy brows lifted with amazement. "It's a long report."

"I have enough. And listen to me, Tony—you'll find this is no matter for the police or Secret Service. Not yet. Nor for the Army or Navy. Later it may be. A big thing, Tony, is my idea."

"A nation-wide plot, you mean?"

"World-wide, more likely. But don't give up. The Science Bureau may be able to do something."

"Huh! Not with Collyer running things."

"He may not have so much to say

an indefinite distance beyond. One half of our air is below the height of 5.8 kilometers. Ordinarily, we call that part of the atmosphere above 10 km. the stratosphere, and here the air pressure is very low, decreasing as the distance from the earth's surface is increased. A peculiarity of these divisions of the atmosphere is that of observed temperatures. Above 2 km. the temperature average below zero degrees Centigrade and continues to fall up to 70 km. altitude, where it is about minus 55 degrees C. At 37 km. the temperature is about the same as at 10 km., and certain observers have found that it again rises until at a height of about 60 km. and above, where the temperature is around plus 30 degrees C. The higher temperature region in these upper levels is believed to extend to about 150 km. Evidence of this has been given by F. J. Whipple, although Sparrow has questioned the existence of such a warm region.

*Medulla Oblongata. This portion of the human brain is situated in the posterior and lower part of the cranial cavity. It connects the brain and the spinal cord and contains the cardiac, vasomotor, and respiratory vital centers. The medulla oblongata merges into the pons Variolii. Two other assemblages of fibers connect it with the cerebellum.

about this, Tony. Thanks again, and—good-bye." Bret pulled the plug from its wall socket and handed the small visiphone to the engineer, who withdrew from the compartment.

The last flash of Gill before his image flicked from view showed a quick twinkle in those sword-sharp eyes of his.

Bret laughed softly. "Good old Tony," was all he said.

"But——" began Wayne. A big hand closed down on his wrist and he broke off short. Bret's long fingers possessed tremendous strength.

"Down!" he whispered hoarsely. "Quick!"

Wayne had seen or heard nothing. The small private compartment with its divan and comfortable seats had been empty save for themselves and its door was closed. But, as Bret bore him swiftly to the floor, there was the faint hiss of an atomite pistol and the rapid thudding of slugs into the duralumin wall behind them. Once more that sixth sense of the scientist's had saved them.

Bret's leap was like that of a steel spring released. His long arm shot with the speed of a striking serpent through the narrow crack the door had opened. And then, struggling in his grasp, was a ratty wild-eyed youth who fought like a tiger. Wayne had the fellow's gun in an instant. But, wriggling like an eel out of Bret's powerful grip, the gunman was off down the corridor.

"Don't shoot!" snapped Bret, as Wayne raised the black barrel of the deadly atomite weapon. "He can't get away."

They rushed into the main passenger compartment aft where a sea of startled faces looked up from the seats. The slim gunman, his eyes popping from their sockets, was at one of the escape doors, struggling into the webbed shoulder straps and leg harness of a parachute pack.

"STOP him!" yelled Wayne. "He tried to murder——"

The steward dived for the fellow but fell back as a knife blade flashed in his hand. Instant uproar came up from the passengers. Some ducked under the seats, seeing the ugly weapon in Wayne's hand and the knife in the other's. Women screamed. A few of the men lurched out of their seats and surged toward the maniac at the escape door. Bret circled cautiously and slipped along the curving wall to try and reach the spot in time. Wayne would have fired to cripple the fellow but could not for fear of endangering the others.

"Back, fools!" screamed the fugitive. The 'chute pack was firmly in place on his back and he was hacking at the safety strap of the door. "Back, I say. I go out, and nobody stops me, you hear?"

'He'll kill us all," the steward was babbling, "Fifty thousand—we're at fifty thousand feet."

The safety strap parted and the long knife swung in a vicious arc that drove them all back. Then the latch release clicked and the door swung open violently as the air in the cabin rushed outward. Hurled through the opening by the force of it, the gunman dropped from sight like a plummet.

Bellowed orders of the captain drowned out the cries of the passengers. The whine of the motor that closed the door, and the throb of oxygen pumps was heard. Already the air pressure inside had fallen to a point where breathing was difficult. The partial vacuum of the stratosphere struck into the cabin. But the quick action of the crew had warded off disaster, for the cabin was again hermetically sealed and the air pressure and temperature built up rapidly.

Bret and Wayne were at one of the floor windows, watching the dwindling speck that was their erstwhile assailant. Swiftly it merged into and was lost

against the checkerboard landscape of the Potomac valley.

"Well, that's that," breathed Wayne. "The 'chute never opened."

"Of course not," Bret husked. "He didn't have the full equipment. Without the heaters and oxygen mask, no man could retain consciousness long enough to pull the rip cord. The rush of air from his lungs—the numbness. Brrr—nasty way to go."

IN the captain's quarters a little later, Bret treated the matter lightly. "Only a lunatic, Captain," he declared. "Poor devil went suddenly daft, is my idea. Luckily, we overpowered him—my friend and I—secured his weapon. Else we'd have been goners then and there. And he might have got others of the passengers as well."

"Yes." The skipper looked thoughtful. "Almost did us all in as it was. Opening an escape door 'way up there. Well—no one seems to know who he was—he hadn't any baggage, and it's sure his body'll never be found. Not in recognizable form anyhow. Guess all there is to do is report the thing just as it happened and let it go at that. We've plenty of witnesses."

"And mighty scared, some of them," grinned Bret.

A buzzer shrilled. "The landing signal," said the captain, and bustled out of the room.

Wayne's usually cheerful countenance was long and solemn, so much so that Bret chuckled. "What's wrong, you scared too?"

"Rats! No, I'm just wondering. And you don't mean to tell me you believe this bird was a plain lunatic, do you?"

"No, I don't, but I had to tell them that. It's too early in the game to voice any real suspicions."

They came out into the runway as they talked. Side and bottom observation ports were here, and the crossover platform that was used for loading and unloading. Below them was the broad landing stage of the Washington terminal. Dropped gently by the great helicopter screws up top, the big air liner was settling to its berth.

"So you really have some real suspicions," said Wayne sarcastically. "The way you're telling me about them——"

"SA-AY," drawled his friend, "I couldn't—I had a hunch someone was listening back there—and, besides, it isn't at all clear in my own mind. But listen"—Bret lowered his voice as the whirr of the propellors ceased—"this is a well-organized plot. Designed to upset economic conditions. A great scientific mind is behind it and the minds of some great rascals too, and powerful interests, as well. The mechanics of it—this silence thing—is what interests us. It is our job to run it down; learn its nature and source. And someone knows we're after that very thing, sure enough. Already they've sent the one thug after us, to try and wipe us out."

"We—us—our!" grinned Wayne. "I'll be there for any scrapping that develops, but it's you that'll have to dope out the technical end. Now, when I was coaching the Yale team——"

Bret clapped a hand over his mouth. "You know I've heard all those old yarns of yours," he chided. "Come along now—we're here."

As they made their way from the terminal below Wayne Gordon was in the most enthusiastic mood he had indulged in for many weeks.

CHAPTER III

Death Whisper

IN the Science Bureau Building on the Mall, they were ushered at once into the office of the director of research, Melvin Kennedy.

"Glad to see you, Garrison, more than glad," said Kennedy, taking Bret's huge hand in palsied fingers. "You're here about this silence business, I take it?"

A little old man was Kennedy, and long since unfitted for active duty, but still a power in the affairs of the Bureau and in political life. Wizened and bent, but bright-eyed and courageous.

"Yes, Mel, I'm here on that very thing. And glad to have your ear—alone." Bret nodded toward Wayne. "Know Gordon?" he asked.

"Ha, yes, yes." Kennedy returned Wayne's grip absently. "By alone I presume you mean without Collyer, don't you Bret?"

"I do. He hasn't any liking for me, you know. Besides, I can not subscribe to his theories regarding the silence."

"Those he gave out over the newscasts?"

"Yes—calling it a natural phenomenon."

"But that was only for public consumption." The aged director dropped his voice. "His private opinion is something else again; he believes it to be the work of international crooks. Theft on a huge scale, and by means of rays projected from out the skies."

Bret started; he had expected a different story. "Fiddlesticks!" he rapped out. "In the first place, how could a band of thieves dispose of billions in gold? And rays! Every time a remarkable thing is accomplished scientifically, someone shouts 'Rays.' Has he detected anything of the sort?"

"No." Kennedy's eyes twinkled. "He's had the staff working with detectoscopes and has discovered nothing."

"Nor will he. Now you listen to me, dog-gone it—I've managed in my own laboratory to disintegrate gold with a modified cathode ray. It produces the same silence blanket over a limited area. But you know how short a distance the cathode ray will span. You can't hurl one out of the skies at the earth like a light beam or a directed radio wave. It can't be done, and Collyer knows it."

"You mean to imply he's holding something back?"

"I'm implying nothing, Mel. Just stating facts. Besides there is the matter of these deaths. Those who were near the vaults, you know. You remember the old experiments with soundless sound waves, don't you? In which it was shown that sound waves of something over a million cycles—far beyond the range of the human ear—will destroy living cells?"

"Yes, yes. Did those——"

"They did; brain cells were destroyed in the case of every victim. In the *medulla oblongata,* where lies the control center of the three most important vital functions of the human body."

"WELL!" gasped Kennedy. "It appears you've learned something."

"Not enough. And that's why I'm here. Before Collyer has a chance to block me, I'd like an order from you for a fully equipped Bureau plane—one of the upper stratosphere type—with a good crew. Will you provide it?"

"Yes, yes, certainly. But, why—I thought you said——"

"Only that it isn't a ray, and that it isn't plain robbery," Bret reminded him, "and that soundless sound waves kill."

"You shall have the order. Kennedy rang for his secretary and issued the necessary instructions.

"One thing more," said Bret when the prim young woman had left the room. "Have you thought of the Asiatic Commune in connection with this?"

"War?" husked Kennedy. "It was outlawed by the World Disarmament Conference in 1945."

"May be a different sort of war, Mel. Though, if it came to the other, we still

have minimum strength fighting forces."

"Yes, yes. Hm-m."

"Hell's hinges!" blurted Wayne, who had kept silence to this time. "You don't believe this is the forerunner of another world conflict!"

"Not necessarily armed conflict," drawled Bret, "but something as bad—economic warfare with starvation as the weapon." Then turning to Kennedy once more—"And, Mel, I'd like to have a word with Collyer before we leave, if I may."

"Yes, yes. At once." The little research director's eyes were bright with anticipation. He had seen Bret in action before this.

Doctor Collyer came at the summons of the secretary. A big man he was, with lowering brows and beefy jowls, as tall as Bret but broader in proportion. He faltered slightly in his stride and paled visibly when he saw who the callers were.

"Uh—Garrison," he choked, "I hardly expected to see you here." Then he bit his lips as if to call back the words. Dark color surged into his cheeks to replace the momentary pallor.

"You rather imagined something might have happened to me on the air-liner coming over from New York, is my idea."

Wayne sucked in his breath sharply as Collyer stiffened. For a tense moment the two scientists locked eyes.

"Here, here, what's this?" faltered Kennedy, looking anxiously from one to the other.

Then came an interruption that was welcome and yet unwelcome. "Stand by for official newscast!" blared the wall-type visiphone. Its four foot screen lighted vividly.

"POINT of pick-up for image flash is Boston, Massachusetts," the raucous voice of the announcer went on. Then it toned down to an awed and husky whisper. "Images only from this point. The silence is on in Boston's financial district. No sound may penetrate this weird new blanket of energy, which, in New York and Philadelphia, has already been accompanied by panic and death. Police Departments in both cities are mum, but rumor has it that simultaneously with the silences there have occurred huge thefts from the banks. Newscast reporters will have definite information in this regard very shortly. Stand by for image flash. Your announcer is speaking from the central newscast station for the northeast. Cape Cod transmitter."

A moment of purring silence while vague images flickered over the screen, unformed as yet—not synchronized—yet somehow ominous.

"Now when I was a newscast reporter——" began Wayne.

"There you go," chuckled Bret, "I've heard that one, too."

Abruptly the scene came into focus on the screen. They were looking down into the streets of Boston. In the foreground was the imposing structure of the Federal Reserve Bank. Milling crowds were in the streets and police reserves battled desperately to maintain order and to prevent serious mass movements.

"One of our reporters who has just come out of the area reports the silence as complete—ghastly. He tells us that . . ." The voice of the announcer droned on and on endlessly. Then suddenly it broke off abruptly. The image flash went on—shifting——

"Now what!" exclaimed Wayne.

His voice was soundless, it rumbled in his chest, that was all. The silence had descended on Washington. Wayne grabbed Bret's arm; saw the muscles of his jaw go taut; followed him as he flung from the room.

Across the Mall was the new Assay

Office. Bret headed that way, racing as fast as his long legs would carry him. Wayne, summoning up some of his old athletic training, kept at his side, but Collyer and Kennedy were hopelessly outdistanced, if, indeed, they had attempted to follow.

IN anticipation of just such an event, a troop of militia was drawn up about the Assay Office. Soldiers advanced with crossed bayonets to halt them. Bret flashed his police badge and they passed on through.

But they were effectually stopped at the outer entrance to the system of vaults. Not even the President of the United States might pass here, unless under special guard and with a thorough search of his clothing, both were entering and leaving.

Bret chafed impatiently before the two officers at the double-barred gate. By pantomine and red-faced shouting that could not be heard, he tried to warn them that anyone inside was in danger of his life. But all to no effect. Though frightened half out of their wits by the eerie soundlessness, these guardians of the nation's gold stood their ground. High overhead, concealed in the stone arches, were cubbies where atomite machine guns were trained on this point. There was nothing that could be done.

A crazy procedure anyway, thought Wayne. Did Bret want to go through—to commit suicide?

Then, from somewhere in the dim regions behind that barred door, a man stumbled forward. Clawing at his throat with frenzied fingers. Begging to be let out.

Bret pulled Wayne back from the gate, then reached for the ceiling. Understanding, Wayne followed suit. One of the guards came over to them, covering them with his pistol. The other made haste to unbar the gate, refastening it immediately the unfortunate one within had stumbled outward to fall his length on the marble floor.

And all without a sound. The blanket of silence was thick and suffocating, as if it were a tangible medium surrounding them all. In the oppressiveness and mystery of it the faces of the guards were set woodenly, ghastly and drawn with a nameless fear, yet stubborn with the determination that held them to their duty.

"Fools!" gritted Wayne. "When already the gold in the vaults has been taken away."

Bret looked up sharply. Wayne's last few words had echoed thunderously in the arches above. The silence had lifted. Instantly all was confusion; a maelstrom of sound beating at the eardrums as if to redouble its normal volume in compensation for time lost.

The guards lurched forward. Soldiery crowded in from outside. Behind the bars was the clamoring of laboratory workers and officials who always worked locked in. Some had escaped the whisper.

The man on the floor was dying. One of the guards raised his head in gentle hands and Bret leaned close to catch his last words. Already his limbs were stiffened and the cords of his neck stood out like metal bands under the purpling flesh. The lips writhed painfully—stiffly.

"THE whisper—death!" he wheezed. Whispering—whispering still. God! a bar of gold—right out of my hands——"

His head jerked spasmodically and they thought he had gone.

"What did it sound like, this whisper?" Bret asked him gently.

"Whispering — fluttering. Like the wings of a bat . . . in a dark tomb . . ."

The silence that yet held a whisper at its core had claimed one more victim.

Bret's face was grim when he rose. "Let's get out of here, Wayne," he said.

Once outside and past the cordon of National Guard, Wayne craned his neck to scan the skies. There was the usual amount of air traffic over Washington. Private and public helicopter cabs darted in orderly procession along the lower air lanes. In one of the upper levels, off to the east, a coastwise freighter drifted lazily southward, her vertical "props" shimmering mistily in the sun. Over at the great landing stage of the air-terminal, a transatlantic liner was just lifting from her berth, ready for the long flight to Paris.

"Nothing you'll see up there," declared Bret. "Nothing that has to do with this."

"But it must come from *somewhere*. Surely they're not operating from right in the hearts of our ctiies." Wayne's thoughts were more and more muddled about the thing.

Bret looked back at the building they had just left and said with seeming irrelevance, "Fine edifice, this new Assay Office. You know, Wayne, in the old days when most of the foreign gold came in by ocean-going vessels the U. S. Assay Office was in New York. The main one. Most of the gold came through there. Now, with so much transported by air, they have this new one in addition. Of course there are branches in such places as New Orleans, Boise, Helena, Deadwood, Salt Lake City, Dawson, and Seattle."

"What a memory!" chirped Wayne admiringly.

The scientist paid him no attention. "Our gold holdings are pretty well distributed now. Federal Reserve Banks; the Mints, although these have comparatively little at one time; these main Assay Offices and the branches. Some in transit. A small amount in the thousands of State, National and private banks. Some little hoarded by individuals. Jewelry. A bit in industry. I wonder——"

CHAPTER IV

Seek the Woman

THERE was much excitement in the offices and laboratories of the Science Bureau. Newscasters were blaring triumphantly of their coup; they now had semi-official but indisputable information that more than two-thirds of the country's gold holdings had been extracted from its vaults in the four mysterious silence attacks. And an admission, from an unnamed employé of the Science Bureau itself, that the thing was not a phenomenon of nature, as had been first announced, but was accomplished by means of a new ray which was in some ways similar to the much talked of but never discovered death-ray. It was the most colossal robbery of all time. Chaos was sure to follow. In the New York Stock Market a great wave of selling was already in progress. By radiophone and even by means of the antiquated cables, so great was the rush, foreign investors were dumping their American securities.

"There goes all our vaunted prosperity!" rasped Bret. "In a week industry will be at a standstill. Instead of being a creditor nation and the financial colossus of the world we'll be bankrupt. There'll be panic, riot, breadlines. Know what that means, Mel?"

They sat in Melvin Kennedy's office once more, Bret Garrison and Wayne Gordon, and word had just come to them that the plane asked for by Bret would be ready for the air in a few minutes. As yet he had not explained his need of the craft nor given any hint as to his plans.

Kennedy's trim gray mustache trembled. "Yes, yes," he quavered. "If all this isn't a dream—it means ruin—and—and——"

"Revolution!" Bret supplied in hollow voice. "And some one, some group, has

engineered it deliberately to that end."

"But—but why?" The aged research engineer brushed his hand before his eyes. He was as flabbergasted as was Wayne.

Bret shrugged. "Ideals, possibly. Some of these radicals are great idealists, you know. War?—maybe. I can't decide. But that a number of factors enter into the thing, is my idea."

Wayne saw that those nervous spatulate fingers were toying with a slide rule he had picked up from Kennedy's desk.

A buzzer whirred softly. "Your ship is ready," said Kennedy, rising. His bright eyes were on Bret quizzically. "You're the darndest fellow, Garrison. Haven't you any more to tell me than this?"

"He tells nothing 'til he has to," grumbled Wayne.

Bret Garrison clamped a big hand on Kennedy's shoulder in more than friendly fashion. "There isn't any more at present. It's a dangerous mission we're going on, Mel. If the authorities were in on it, it would be fatal at this stage. My hunch may be all wrong but I want to run it to the ground in my own way. You've kept the matter of the plane secret?"

"Strictly so."

"Even Collyer doesn't know?"

"He does not." Kennedy's head came up, birdlike. "You suspect him, don't you?"

Bret guffawed disarmingly. "Sa-ay! Collyer is in a rage; he's combing the entire force to find out who spilled that private idea of his to the newscasters. He didn't want *that* to be made public—or maybe he did."

With that cryptic remark, Bret Garrison bid his old friend farewell.

THEIR ship took off from the flat roof of the Bureau Building. A thing of beauty and of mechanical perfection, the ME 4. A completely enclosed combination plane of the Meteorological Division, designed to penetrate to the topmost levels of the stratosphere and capable of more than a thousand miles an hour ground speed in the windless, practically airless lanes at thirty-five miles altitude.

Its single helicopter screw and the variable pitch propeller at the nose seemed unusually small as did the stubby wings that projected from each side of the slim tapered body. And the rocket tubes astern, which were for use where the air was so thin that propellors and wings no longer took hold, gave the ship a fantastic appearance reminiscent of the vessels dreamed of for interplanetary travel.

Inside, the ME 4 was a maze of machinery, yet provided comfortable quarters for the two voyagers in addition to the crew of five. There was, besides, a miniature but excellently equipped laboratory, without which no plane of the Science Bureau would be complete.

Not until they had pulled well up out of the troposphere did Bret tell Kelly, the pilot, their destination.

"Mexico!" exclaimed Wayne, who had been burning with curiosity and was more than a little disgruntled by his friend's taciturnity.

"Nowhere else." Bret grinned, but his blue eyes remained solemn. "You'll like this job, Wayne—you always were susceptible to feminine wiles."

"FEMININE?" Unconsciously, Wayne straightened his cravat.

"Yes; there's an old saw that's often repeated in a case like this—*cherchez la femme.* Remember Paula Kratkin?"

Wayne flushed uncomfortably. He did indeed remember her; had made a fine fool of himself over her a few years back. "Good Lord! The radical leader they deported in 1945?"

"The same. Now, see if this'll sink in." They were in the small lounging cabin and Bret settled himself with an unlit cigar in his teeth. "Paula's in Mexico, in a retreat in the Sierra Madre mountains. I was reminded of her by the swarthy youth who attacked us so unsuccessfully on the way over from New York."

"You mean to say——"

"Only that I recognized the poor devil. Krug Tulov—his father was Paula's advisor and trusted lieutenant in the days when they almost got control in our country. That set me thinking and I got this hunch of mine. Paula has something to do with this, is my idea."

"Rats! Paula wouldn't——"

"No, she wouldn't plan a murder, but some of her agents might."

"Agents? You think she's in with the Asiatic Commune again? Why, they refused to harbor her when she was exiled. It can't be."

"Mightn't that refusal have been for effect? The Asiatics had everything to gain and nothing to lose in the Conference of 1945. It might have suited them then to take such action. For the peace of the world and to get the help of the other nations in pulling out of that worst of all economic depressions."

"Hell's hinges! What are you driving at?" asked Gordon.

"Sorry, Wayne. I know I talk all about the bush when I'm theorizing. Many things are still unexplained to my mind, sure enough, but I'll give you my ideas so far in a nutshell: Paula Kratkin, an idealist of the old school of communism, has organized forces to bring on a revolution in the U. S. A. We are the only strictly capitalistic nation left in the world. In times of such unprecedented prosperity as these she would have no chance. A prosperous community doesn't provide very fertile ground for the sowing of seeds of discontent. *Ergo*, she must provide such a depression as we have never experienced. Someone suggested to her this scientific means."

"Dai Chan!" Wayne sat erect with a jerk.

"It does sink in, doesn't it?" chuckled Bret. "All right—Dai Chan, clever as he is, must have inside help. Say, one of our own scientists who knows of the latest developments in electronics."

"Collyer, Good Lord!"

Bret shrugged. "Possibly. But at least you can see why I moved as I did. And now we come to the meat of it. Paula, misled though she is in her aims, is sincere, and believes she is working for the best good of mankind. She'd be glad if there were no more gold in the world—ever. But not the others. They prate of equality and the brotherhood of man and what have you, but do they practice it? Not if they get a chance at some real money. Wayne, Dai Chan knows that gold can be reintegrated after seeming complete disintegration. So does friend Collyer."

Wayne could only gape. He had believed that there was no way of reassembling matter in its original or any other form, once its atoms had been disassociated.

"Come into the laboratory and I'll demonstrate," said Bret.

AN hour and a half later, Wayne Gordon came out of the tiny workshop compartment satisfied. He knew as much about the matter as did Bret Garrison—or thought he did—barring involved technical details that were beyond his comprehension. In a series of astonishing experiments, Bret had proved his point. Wayne had seen a pellet of dental gold vanish into thin air and later reform in a crucible as if by magic. Sensitive wave motion detectors had showed to him the various frequencies of soundless sound that were set up in the process. Though

insulated carefully from its effects, he had heard the flutter they spoke of as the whisper of death—a beat note between certain other frequencies.* And one other thing he had seen which was perhaps the most amazing of all; Bret called it an energy center. A ball of pure energy that was made visible only by fluorescent screens. An intangible thing that had most remarkable properties. You could suspend it in mid-air and direct its movements at will by radio impulses. It was capable of penetrating the thickest of walls without leaving a trace of passing through, and of emitting those very energies which produced both the silence and the whisper of death. Only one thing was left unexplained as far as the scientific aspect of it was concerned —but that could wait.

"And something else," Bret told him before they went forward to the control room, "that Collyer and Dai Chan *don't* know."

Wayne pushed his derby to the back of his head—incongruously enough, he still wore it—and objected vigorously, "How about me? Why can't I know? I'd sell my shoes to——"

Poor Wayne! Bret had the art of holding his curiosity by the simple process of not gratifying it too readily.

Bret laughed and opened the door to the pilot's compartment. "It can wait, is my idea," he reiterated.

Kelly and the co-pilot were inside. Warren, the relief man's name was. Both were trusted men of Kennedy's as were the others of the crew.

"WE'VE crossed the Rio Grande, sir," said Kelly. "You say the place is north of Galeana?"

"Yes, eight miles. How near are we?"

The pilot consulted his flying chart and instruments. "About a hundred and fifty miles, sir."

"Good. We'll be there in a matter of minutes. Did Kennedy give you any instructions?"

Kelly showed two rows of even white teeth that provided startling contrast to the leathery bronze of his skin. "Only that we were to keep our traps shut, go wherever you said, and fight like hell for you if we have to."

"Quite an order." Bret returned the young skipper's smile. "I expect to chase you on a longer trip after this one, and it may be you'll have to do some of that fighting, sure enough."

"All in the day's work," Kelly returned cheerfully.

And in the eyes of Warren, a long-limbed and shock-headed Texan, an unholy glee lighted at the prospect.

Wayne, at the floor observation port, was first to make out the railroad at Montemorelos. Kelly cut the rocket tube ignition and the ME4 nosed down in the long dive to earth.

It is a weird sensation coming down from these high altitudes, for with practically no air resistance, the ship drops with full acceleration of gravity. The body, falling at almost identical speed, becomes practically weightless with reference to the vessel itself. There is a helpless sensation, that of having lost one's means of locomotion, as well as the loss of sense of balance. The body drifts light as a feather from point to point, propelled only by a touch of the finger against any fixed object. With

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* Beat note. Frequency of 100,000 cycles superimposed upon one of 101,000 cycles may result in an audible "beat note" of 1,000 cycles, which is the difference between the two higher and inaudible frequencies and is effected by coincidence or duplication of beats at each one thousandth cycle, when vibrating waves meet in unison. It is on similar principles that the familiar super-heterodyne radio receiver operates, the inaudible radio frequency being received and combined with a locally generated frequency which is sufficiently different to provide a beat note frequency of a value where radio frequency amplification is most efficient. In this case the beat note is likewise at an inaudible frequency, usually of the value of 175,000 to 460,000 cycles. The amplified impulses are then rectified by a vacuum tube detector and become audible.

The whisper of death was just on the edge of audibility and was a beat note between various complex inaudible frequencies which were produced by conflicting energies of the atomic disintegration process.

the eyes closed, there is no sense of motion whatever, no perception of what is up or down.

THE ME4 had been traveling at the thirty mile level. Watching the altimeter with bulging eyes, Wayne clung with both hands to one of the rods that are placed alongside the ports for that very purpose. It was his first experience in one of these upper stratosphere planes and it seemed that the bottom had fallen out of his stomach. And it mattered not a bit, in his present state, that the others were observing him with amused interest.

An eternity it seemed, though actually it was only seconds, until the ship came into a sensible cushion of air and his body began to take on some of its natural weight. There came the welcome purr of atomite motors and Wayne knew that wings and propellors once more functioned.

Only when he was again able to sit comfortably in one of the bucket seats and the altimeter needle had backed off below the ten mile point, did his usual sang-froid return.

"Now, when I was radio operating—" he began in a voice curiously unlike his own.

And then laughed as heartily as the others.

CHAPTER V

Paula Kratkin

APPROACHABLE only from the air, the mountain retreat they sought was a group of low buildings that would have been passed by unnoticed had it not been for the aircraft hangers and circular landing field in its midst. There was no attempt at concealment. Indeed, camouflage was hardly possible these days, and was unnecessary besides. Paula Kratkin was here under protection of the Republic of Mexico and with approval of the World League—provided she made no effort to visit any other country for more than the twenty-four hour period allowed without passport. And for Paula there could be no passport.

What fools and dupes were those of the Powers, who thought thus to curb the scheming activities of the matchless Paula Kratkin!

Kelly set the ME4 down in the precise center of the landing field. Passengers and crew tumbled out and looked about them.

It seemed at first that the place was deserted, but none of the Americans was deceived. On each of the low buildings was a small cupola and in these they knew were men with atomite machine guns. Bret and Wayne walked forward in the direction of the main building with hands spread wide to show they were unarmed.

A pompous gold-braided majordomo strutted across the broad porch to face them haughtily. He was a pallid, bearded fellow with high and bulging forehead, his nationality of indefinite origin.

"Who eet ees you wish to see?" he demanded.

"Tell your mistress," returned Bret smoothly, "an old admirer is here—Wayne Gordon—and his friend Garrison."

The haughty one bowed to the waist and withdrew into the shadows of the house.

"Dammit, Bret!" exploded Wayne, flushing, "You're making a fool of me." But his fingers were expertly busy arranging the knot of his tie.

Bret chortled gleefully. "No," he disclaimed, "I'm not. That was the best way to——"

BUT PAULA KRATKIN was upon them in a disconcerting avalanche of silken negligee. "Wayne! Bret! So

good to see you." She planted a kiss on Wayne's cheek, leaving his scar livid against the crimson that mounted so swiftly. Then taking his hand and Bret's, she pulled them to the door. "Come in, come in. We'll talk together of old times, of oh so many things."

Over her white shoulder she flung: "Ivan! Carlos! Pierre! You will see to the ship and its crew."

Instantly the courtyard was alive with men who rushed to do her bidding. As all men had always scurried to gratify the least whim of the incomparable Paula Kratkin.

Bret saw the crew of the ME4 huddle swiftly together. "It's all right, Kelly!" he sang out, then went in after Paula and Wayne as he saw that this was so. It was not here that danger had to be feared.

Paula was genuinely glad to see them. It had been, oh, so many years. And Wayne had been *such* a nice boy. Bret, as well, although he *had* come between them. Which, truth to tell, had been right and proper. For had she not been, oh, ever so much older than the young Gordon? Paula, curled luxuriously in a chaise longue and utterly bewitching in her marble and jet beauty, prattled on and on.

Wayne, reddening the more painfully as she continued in this vein, could only drink in anew the loveliness of the woman who had seemed so important a part of his life when he was younger and more impressionable. The curves of her lithe body, shown provocatively by the negligee she had drawn tightly about her. Smooth, unbelievably white was the column of her neck and the superb shoulders. The proud tilt of her chin and the wide, heavily lashed black eyes in which mysterious fires slumbered. The sleek blue-black hair was drawn back from her brow. It seemed she had not changed in appearance one iota.

Bret, watching her closely, observed her through different eyes. To him it was amazing that a woman who must be nearing forty-five and whose career had been so checkered could remain so vital and keep so well preserved. Fifteen years before, and until her exile, her name had blazoned in the lights of Broadway. A famous actress in her public life those days; an internationally known agitator in the life that was so well submerged by the other. A power of the Fifth International. And still a woman capable of wielding that power.

"Paula!" Bret's voice cut like a knife, though he had not meant to be rude. She ceased her chatter instantly. "Paula, let's come to the point. We are here to talk of this thing that is transpiring in the States."

The great eyes signified by not so much as a flicker that she was startled or even annoyed. "You do not come officially?" she asked quietly.

"No, even though our ship bears U. S. insignia. We are here to help you, Paula, in return for certain information."

"HELP—me?" laughed the Kratkin throatily, "But, my dear Bret, I need no help whatsoever. The thing is done; within a week's time my millions of followers will have taken the government of your so lovely country in their hands. See!—I show it to you." She reached to the visiphone.

"No, never mind that; we know all about what is happening there. By now the gold holdings of Uncle Sam have well nigh vanished. If it were not so you wouldn't admit so readily that you had a hand in it. That isn't the point—now. Listen to me, Paula: Krug Tulov died this morning. You didn't know that, did you?"

Jeweled fingers wandered to the white throat. "Krug—died—! How?"

"Suicide. After failing in an attempt to kill Wayne and me."

"Oh, oh! But Anton Tulov has nothing to do with this, I swear it. We've broken off this long while, Anton and I."

"I know that, but are you sure he's not in on it?"

"Yes, oh yes. How could he be? And besides, why should they want to murder you?"

"They've been watching my house for weeks, Paula." Bret's voice was low and tense. "And, after the first blow was struck this morning, I left for Washington with Wayne. On the way the attack was made. Know why I was making that trip?"

"N-no."

"Because I wanted to be sure of certain things that were not quite clear to me at the time. And because I am one of the few living men who know that disintegrated gold can be reintegrated."

"It can what?" In a flinging of her sinuous body like the leap of a panther, Paula stood over Bret and was gripping his arms with a strength he would not have believed lay in those slender fingers. "You're not lying to me, Bret Garrison!" she challenged.

"Certainly not. Dai Chan knows this; so does Collyer. See the connection?" Bret's blue eyes were unblinking; Paula believed him.

"I DO, I do." The amazing woman released him and commenced pacing the floor like a caged animal. "Tulov and Dai Chan—I see it now. They've betrayed me; betrayed the millions of downtrodden. I have been their dupe, and these millions I've stirred up by propaganda—all that will serve only to protect them in their base scheme."

"Calm down now, Paula," soothed Bret, "I've said we'd help."

"Help!—how can you help? What do you want of me?" The distraught woman paused to stare helplessly at the man who had opened her eyes.

"I want you to go with us to Dai Chan's laboratory—show us the way. He sends out the energy centers from there, does he?"

"You knew about those, as well?" Paula had ceased her pacing. Only the heaving of her breast betrayed emotion. "You know all there is to know, Bret Garrison. Yes, I'll go with you. Over the top of the world to a little island off the coast of Siberia. I'll go—now. Demetrius!" She clapped her hands on the last.

All too swiftly a great bearded giant answered her call. It was evident he had been just outside the door.

"Demetrius, you will pack for me quickly. You and I are going north with these men—at once." A whirlwind of fury, Paula swept from the room.

The big fellow, pausing irresolutely for the briefest instant, was on her heels without a word in reply.

Wayne, who had kept silence through all this, grinned comically. "Well, that's that," he chuckled. "Think it's safe to take the big Siberian watch dog along?"

"It'll have to be, it seems." Bret shrugged. His long fingers toyed with an ivory paper cutter on Paula's table. "Hell hath no fury like—" he started to quote.

"Stalemate!" said Wayne, "*I've* heard *that* one before."

NIGHT had fallen when the ME4 took off amidst the protesting farewell demonstrations of Paula's followers. A motley group was there on the landing field, attired like Mexican peons but representative of almost every race and creed—all loyal to the ideals of their leader.

Kelly gave up his sleeping cabin to

Paula; he'd use Warren's when the co-pilot was relieving him. The big Russian, Demetrius, had been taken care of in a similar fashion by one of the engineers and had already retired. He was a surly fellow anyway, and poor company at any time, though obviously Paula's trusted bodyguard.

But Paula remained in the lounging cabin with Bret and Wayne long after the ship drove up into the stratosphere and started on the swift trip northward. She had changed to a regulation flyer's costume and Wayne saw that her fingers were bare of the jewels she had worn. For many minutes she was silent, downcast.

"What do you say we snap out of it, Paula," suggested Wayne, "All isn't lost, you know. Life goes on just the same."

"All *is* lost—for me," she returned bluntly, "Home, country, my hopes of millenium. Like a fool I had thought it about to come."

"Our world isn't ready yet for such a change," Bret put in gently.

"Perhaps not. But, oh, it would have been the beginning."

Not agreeing, Bret forbore further comment.

Paula moved to the visiphone and flipped its receiving lever. A flash of Madison Square Garden showed in the disc. Though now long past midnight in New York, a great mass meeting was in progress there. The blatant voice of a fiery-tongued orator filled the cabin. Paula switched off the instrument impatiently.

"I'm a fool," she said bitterly, "I sacrificed everything and to what use? What little I have, my poor jewelry—family heirlooms all, the little luxuries a woman loves, all these I was ready to share. But greed—the greed of those I trusted—comes in to spoil it all."

"Come now, let's forget it," ventured Wayne.

"Forget it! I can't." Paula's smile was brittle as ice. "There have been deaths, as well—from this silence. They didn't tell me that, but I feel responsible. I—oh—I believe I'll retire. Good night boys." With that, she turned swiftly and was gone.

"Sort of tough on her, Bret." This huskily from Wayne after a long silence.

"Yes." Bret Garrison's blue eyes were abnormally bright. "Her son, too."

"Her son! Good Lord, did she have a son?"

"Krug Tulov." Bret was strangely busy with pad and pencil.

Wayne could only stare. After a long time in which the only sound was the muffled purr of the rocket motors astern, he rose stiffly.

"Guess I'll turn in, Bret."

"Me too. There'll be lots to do in the morning—a big ruckus probably, is my idea."

They went their way to their separate cabins.

SOME time later, Wayne awoke to a curious sense of vacuity. For a moment he forgot where he was; then the gentle throbbing of the ship to the rocket discharges brought it all back. But there was no sound. Not the faintest noise from the stern compartment where the machinery was operating.

"The silence!" He shouted it, but no echo of his own voice was in his ears. Only the rumbling in his chest and the tingling vibration in throat and nasal passages.

God! Had Dai Chan found them out—sent one of his energy centers into the vitals of the ship? He stumbled from his bunk, groping blindly for the light switch. Found it. But it failed to work.

Shouting again soundlessly, he burst into the corridor. And then a sound

was in his ears—a ghastly fluttering as of bat's wings in a tomb. He remembered vividly the words of the poor devil in Washington. It was the whisper of death.

In the passage he collided with someone, a big man who reeked of the foulest of pipe tobacco. The Russian! Thick fingers clamped on Wayne's throat and he was fighting for his life. He lashed out again and again with fists which sank in yielding flesh without a sound. The fingers loosened. He brought up a terrible right that landed hard on a bearded chin. The big man slumped down.

Still there was no real sound. Wayne laughed crazily. At least it must have sounded like the hysteria of a maniac had ears been able to hear. What use . . . fighting a man in the face of death? This death that came with a whisper . . .

Wayne Gordon knew no more.

CHAPTER VI

Dai Chan

WHEN Wayne's consciousness returned, it was abruptly and to the accompaniment of a thumping headache. He looked up dazedly into the anxious eyes of Bret Garrison. Gingerly turning his head, he saw that he was in his own bunk aboard the ME4. There was light, but no sound.

He raised his voice as an experiment and found that it reverberated satisfactorily in the narrow confines of the sleeping cubby. It was not *the* silence but a natural one that pervaded the ship. Wayne grinned and sat up.

"Well, said he cheerfully, "That's that."

"And that was a mighty close call." Bret's reply was measured.

Suddenly Wayne remembered. "The Russian—Demetrius!"

"Sa-ay! He's all right, excepting for a sore jaw. It's you we've been worried about."

"But, the silence—the whisper." Wayne rose groggily to his feet, then sank back with a groan. His head throbbed unbelievably. Bret—he——"

"Now, now, take it easy. Rest up a bit while I tell you what happened. Demetrius had nothing to do with it; *he* thought *we* were putting one over and was only blundering about trying to protect his mistress. The thing itself was sheer accident. During the night Warren, who was piloting, saw an upper level freighter in distress. He dropped to her top side and took hold with the magnetic grapples. But—the freighter was carrying a shipment of boullion and had been located by one of Dai Chan's energy centers. That's where the silence did its work—in the freighter. Your cabin happened to be nearest the center of radiation and you got the slightest touch of the whisper. A few more seconds and you'd have been a goner, sure enough."

Wayne's head was clearing rapidly. "And the freighter?"

"Warren let go almost at once and she went down. We picked up a newscast later that reported all aboard her lost."

"Mm-m, Nice fellow, Dai Chan. But——" It came to Wayne then that the ME4 was no longer moving; her machinery was stilled. "—we have landed, have we? Where?"

"At our destination—or at least we're only across the island from Chan's lab. You've been out for nearly ten hours, Wayne."

"Wha-at! No wonder you say I had a close call. But I'm okay now, Bret. Let's be moving." What he said was not far from truth; Wayne was feeling better by the minute.

THE scientist brightened perceptibly. But deep hollows showed under his eyes and Wayne's conscience smote him at the knowledge they brought of Bret's long and anxious vigil. A friend worth having, was Bret Garrison. Wayne rose steadily now and gripped his shoulder.

"Only one thing I want to tell, you," Bret cautioned him, "Right now I'm putting the whole thing in Paula's hands. Don't know if I'm wise or not, but there's no other way of getting to Dai Chan. His place is too well fortified. Already I've done one thing she asked me to do—I raised Washington on the visiphone, using the closed wave band for secrecy, and had Collyer locked up. They're holding him on a charge of murder preferred by me."

"Murder?"

"Yes, the death whisper, you know. But, while I've suspected that Collyer knew something about this, I haven't quite believed he was actually involved. But Paula swears she'll supply the evidence."

Wayne had never known his friend to be quite so undecided in any matter. "I'm for trusting Paula," he said flatly.

"I thought you'd be," said Bret enigmatically, "and I can't see any other way out at the moment."

THEY found Paula in the radio compartment surrounded by the entire crew. Hovering watchfully out side the ring of her admirers was Demetrius, who grinned sheepishly through his beard at the sight of Wayne.

"So glad you're recovered, Wayne," trilled Paula, taking both his hands in hers, "I've been, oh, so very much disturbed."

Her scarlet lips pursed in the old provocative way; the same old throaty caress was in her voice. And Wayne's heart did a flip-flop just as it had in days gone by.

"What's the latest on the newscasts?" growled Bret.

"London," spoke up Kelly, "Bank of England wiped out. And the panic sure is on—all over the world now.

"Yes Bret, it is so." Paula was solemn, her attention drawn from Wayne. "Factories have closed down; there are the riotings; all as I had planned. But not in this way had I planned it—you will believe me, my friend?"

"I believe you"—shortly, "And now that Wayne is up and around you'd better call Chan. This thing can't be permitted to continue much longer."

"Yes. The secret wave-band—I have it here. I will call him."

"You've painted over the ship's insignia?" Brent asked Kelly as Paula manipulated the frequency control of the visiphone.

"We have. There's not an identifying mark."

"Good. Now——"

But a face had materialized in the viewing disc at the visiphone. A square Oriental face with blinking slant eyes.

"Hirobumi," breathed Paula, "I would speak with Chan."

The face vanished and in an instant another appeared, dignified, bespectacled, with smooth-shaven dark skin under a white turban. It was Dai Chan, long known as the greatest scientist of the eastern world.

"My dear Paula," he purred, "This is indeed a pleasure."

"I must come to you at once," the woman told him breathlessly, "Something has gone amiss with our plans.

"Oh indeed—something is wrong." The faintest of ironic smiles curled Chan's pinched lips. "And you would come here?"

"I am here. And I bring the scientist Garrison. In place of Doctor Collyer, who has been apprehended."

"Collyer apprehended!" Chan's eyes

narrowed. "Fool that he is! He has talked too much. But Garrison—ah! You are already here, you say. How can this be?"

"Yes, on the island. In Garrison's plane. You will guarantee us safe conduct?"

"I?—why, most assuredly." Oily and ingratiating now, Chan's smile. "How many in the party?"

Paula enumerated them. "We will come at once," she told Chan.

Under the spell of her, the crew had no objection to offer.

THE ME4 rose up from her ice-bound hiding place and wafted across the tiny island. Beneath them spread the vast unbroken ice fields of the Arctic, dreary and monotonous. No open sea was in sight. No land excepting the snow-covered island directly below.

Dai Chan's stronghold was on the very peak of a rugged promontory, showing only as a circular platform of steel for the landing of aircraft, with a number of small domed turrets around it. All else was hidden from view in chambers hollowed out of the solid rock beneath.

When the ship had landed on the platform, Kelly sat for a moment silent at the controls. With him were Paula, Bret and Wayne. Three of the turrets that were in view of the control room windows were gray lumps of armor plate with narrow black slits that looked ominously toward them, like watchful eyes of crouching monsters.

"They've got us where they want us now," grunted Kelly, "If the atomite guns open up, it'll be just too bad."

"Oh, but they'll not do that," Paula said with easy assurance, "In a moment we shall have been lowered to the hangars."

What she said was true. The platform began dropping smoothly and steadily, carrying them with it. Soon there opened up a honeycomb of compartments that extended radially from its edge. Stalls, these, far below the surface, and in most of them were housed upper-lever craft of similar design to the ME4.

When the platform came to rest some fifty feet below the turrets, an army of mechanics rushed out to take the ship in charge. Kelly hesitated before opening the exit port, looking to Bret for approval.

"Let us hasten," clamored Paula, "It is the only way. And, oh, I know you boys will trust me, whatever may transpire."

Bret nodded to Kelly and they filed out into the underground lair of Dai Chan. In a trice the ME4 had been cradled in one of the stalls and the platform rose swiftly to close off the circle of gray sky overhead. They were definitely committed to the mercies of Dai Chan, no matter what the result.

Paula led the way quickly to a lift which dropped them still farther into the depths. The Kratkin had been here before.

And then they were in the presence of the great scientist of the East. Dai Chan, part Hindu, part Chinese, who might have been one of the greatest savants of his time, had he but chosen to walk the way of the upright. He was a romantic figure still in the world of science, though his whereabouts had been a matter of speculation for some little time.

SUAVELY he greeted them in what appeared to be an ante-room of the main laboratory. There were only Wayne and Bret and the woman, Kelly and his crew having remained above with the ship.

"A pleasure indeed," he reiterated, "And one I had not anticipated. You,

my dear Paula, one is ever charmed to see. And the great Garrison—we have met under different circumstances but surely not under more agreeable ones. The honorable Wayne Gordan I am more than pleased to know."

Wayne chilled under the basilisk eyes; let his hand go limp in the clammy grip of the other.

Paula came at once to the point. "Dai Chan," she accused him, "You have played me false. My plans—our plans—they have not been followed as intended."

The turbaned scientist smiled. "Most deplorable," he assented, but yet necessary, my dear Paula. There are other and more powerful interests; other ideals more practicable than yours."

"Anton Tulov, you mean."

Chan nodded.

"I had anticipated that," lied Paula, "And perhaps I am here on a mission other than you imagine, bringing with me the scientist who is greater than Collyer."

She linked her white arm in Bret's, smiling archly up into his woodenly unexpressive face.

"So-o!" Chan peered over the rims of his eyeglasses, a light of comprehension seeming to dawn in his beady optics. "Garrison has told you of the—er—possibilities in this process of ours. And you, my dear Paula, seeing your cause was lost, have come in for a share of the spoils. I warn you Tulov will not receive you too kindly."

Paula's long lashes dropped, veiling the great eyes. "Anton is here?" she asked faintly.

"He is, yes," a voice cut in sharply from the doorway, "Anton Tulov is here."

Dai Chan's teeth bared in a knowing smile. Paula buried her sleek dark head on Bret's shoulder. "Make love to me," Bret Garrison," she hissed fiercely. Reluctantly yet convincingly he enfolded her slim body in his long arms.

Stupefied with amazement, Wayne watched as Tulov advanced into the room, with a stubby atomite pistol levelled before him. The face above the gun's siout was the cruelest Wayne had ever seen; swarthy, beetle-browed, and with jaw muscles working spasmodically. But most remarkable were the eyes; so pale as to be almost colorless, they stared without blinking. Cold, those eyes, like the eyes of a fish.

The man himself was hardly taller than Wayne, but was built like a gorilla, with massive shoulders and enormous chest. His bullet head was set well forward on a neck like a bull's. He walked with a tread as soft and as deliberate as that of a cat stalking a mouse.

"You promised, Chan!" Paula cried out, "Promised us safety."

"I, yes, but I am not Anton Tulov." Still Chan was smiling.

Tulov thrust the gun in his pocket with a sudden grunt of contempt. But he continued his advance toward Bret and Paula, his huge outstretched and hairy paws working convulsively. Wayne tensed his body for a spring at the beast.

"Anton!" Paula Kratkin screamed suddenly and flung herself upon him, her white arms going up around his neck. Then, moaning, she slid to the floor at his feet.

Wayne was seized with the desire to pinch himself. If this was acting on Paula's part it was consumately done.

CHAPTER VII

Dream of Empire

TULOV seemed torn between the desire to raise her to her feet and to rend Garrison limb from limb. One of his hands dropped to the

bowed, dark head, then withdrew as if it had touched a hot coal.

Bret moved forward to assist her but fell back at a bellowed, "You keep your hands off of her, Garrison!"

A moment the brute stood undecided. Then, in a single swift move, he lifted the woman's limp form from the floor and stretched it on the leather couch that was in the room.

Gruffly he said to the others, "Sit down. We'll talk this out."

The smooth countenance of Dai Chan was inscrutable.

Paula drew in a long sobbing breath and raised her dark lashes, affixing Tulov with a piteous gaze. "Where is Krug?" she quavered.

Tulov scowled. "The boy is all right," he averred. "He is an organizer in one of my Atlantic City Coast units."

Wayne sucked in his breath sharply. "The father didn't know then what had happened.

"Anton, I want him." Genuine tears were in Paula's eyes. No acting about this. "You took him from me; set him against me. I must have him; must see him."

"That was not your reason for coming here." Tulov's words splintered the ensuing silence. He had regained his poise. You gave him up of your own accord, Paula. By your own actions you forfeited all right to him. Forfeited his respect."

It was a strange scene between these two who had loved and parted. Paula sat up weakly; brushed a slim white hand before her eyes. Tulov cast his pale eyes first upon her, then chillingly on Bret. It was plain she had aroused the brute's jealousy. Plain, too, that he still considered her his own.

"I—I know," Paula faltered. "But, after all, he was—is—my son. Our son, Anton. And I'm tired, tired of it all."

Tulov's gaze wavered. One could see the fire of desire leap up in those pale eyes and then die down. Paula had never been more alluring than she was at that moment, although disheveled and in khaki breeches and jacket. Perhaps it was because she, a proud woman always, was displaying a meekness and yielding in defeat that was calculated to arouse all the chivalrous instinct of the opposite sex.

"I CAN not trust you, Paula." A slight softening was in Tulov's voice; then it hardened anew. He jerked a thick thumb toward Bret. "Explain him if you can. And why I find you here in his arms."

"It was that I thought we could use him, Anton. In place of the other. Collyer was getting—what they say—cold feet. I believe he gave himself up to the authorities. He would have confessed had he gone on. Besides, my influence with him was waning—he——"

"He had nothing to confess except his own weakness. He knew not a thing of the real plans, or of this place." Tulov laughed bitterly then. "So your wiles were effective with Garrison after the other slipped through your fingers. Always have you thus used the susceptibilities of men. And now that you learn I outwitted you in this scheme you come to me. Bah!"

Paula spoke no word; there was resignation in the wide eyes.

Tulov wheeled on Bret. "I'm surprised you're here, Garrison. I left orders in New York that the best of my agents was to be assigned to your removal in the event that you displayed interest in this matter."

"Your agent failed," said Bret, watching Paula narrowly. He saw those fluttering fingers go up to the white throat. "Now that I *am* here, it seems I'm not wanted."

"Not wanted!" Tulov guffawed noisily. "You're here, and here you remain—to assist Dai Chan. Now get this—and you too, Paula—you see before you the new arbiter of the world's destiny. The blood of the Romanoffs is in my veins and I intend to take back that which they lost and more. Before another day shall have passed, the gold of the nations will be in my hands. Then I shall go to Moscow."

"Anton!" Whether ecstatic awe was in Paula's voice, or fear, no one could know.

"He's nuts," whispered Wayne with conviction.

Chan's inscrutability was undisturbed.

"Yes, I shall go to Moscow," Tulov went on, his pale eyes half closed, "to restore the glory of the czars with this gold. And a glory greater than is to come, for the nations will be at my feet. In the Russias and in those countries allied with them in the Commune, is much dissatisfaction with present conditions. In Germany, Austria, France, Italy, it is the same. Millions are waiting for the return of monarchistic government. And I shall be their monarch. I shall dole out this gold to good purpose, when the pinch of hunger has come to convert the foolish and the stubborn. See, Paula, how mad you were to think you could succeed?"

"Suppose," interposed Bret drily, "the nations set up a new standard? Say silver or international script."

"Silver we shall take as we are taking gold. Script would be valueless when I make the gold available—for considerations."

"You'll never get away with it, Tulov, is my idea," drawled Bret. "One man can't set himself against the world and win."

"I am not one man against the world. My followers are legion in number, as you see. And when Paula has enlightened her rabble, as I shall presently direct, there will be so many more. But enough—you are taking orders from me now, Garrison, understand that. "You will accompany Dai Chan to the laboratory—you and your man—and will work with him there. Meanwhile I would have some words with my—with this woman." Anton Tulov leered at Paula, who sat meekly silent.

"Take them away," he snapped, as the others made no move.

WAYNE, who was about to speak out his mind, thought better of it and followed Bret and Chan into the laboratory. Looking back, he was surprised to see a smile of triumph curl Paula's lips and an answering gleam in the pale eyes of Tulov.

"Paula's double-crossed us," he whispered to Bret.

"I shouldn't be surprised," his friend returned evenly.

But Dai Chan was leading them past rows of humming machines that made further conversation impossible. This was the power plant where huge amounts of electrical energy were generated for the processes by which the world's gold was being searched out and transported to this place. When they had passed through the long aisle of generators they came to Chan's sanctum sanctorum, a room where all the intricate controls of the weird forces were assembled—a place of innumerable gadgets and shiny levers, with many televisor screens on its walls.

Chan closed the door, shutting out the noise of the generators. "Quite a laboratory is it not, honorable sir?" he asked of Bret.

"It is, sure enough. But Chan, why are you in on this scheme? It cannot succeed."

The turbaned scientist regarded them solely through his thick glasses. "It is succeeding," he declared, "as you will soon see."

"But," Bret persisted, "why do you lend yourself to be so nefarious an undertaking? You, a scientist of——"

"You forget," smiled Chan, "that a price is on my head in my own land, that I am an exile. Only in the event of Tulov's success can I once more take my rightful place in the world of science."

Bret nodded understanding. And Wayne was remembering some of the details of Chan's unfortunate blunder that resulted in the destruction of his Calcutta laboratory and the loss of many lives. Truly, he was a victim of his own machinations.

"No more of this," said Chan firmly, "We must proceed with the work."

He turned to a keyboard like that of an organ and depressed a number of keys in rapid succession. The televisor screen before them lighted brilliantly and there flashed into view on its surface an area of narrow streets flanked by old-world buildings. Strangely, a spot of purplish light glowed deep in the sub-structure of one edifice, a flickering radiance as of the operation of an X-ray tube deep within the cellars of the place.

"Vienna," Chan explained, "The glow you see is the attraction plate for the energy center. It was necessary that one be located in each central point from which the forces radiate."

"Ah-h," breathed Bret, "I had wondered about that."

Dai Chan chuckled. "In the United States," said he, "this was most ably handled by Kratkin's organization. And her efforts with Collyer were most successful in this respect, since it was through his governmental contacts that the locations of hidden vaults were learned. He likewise compounded the rare alloys for the attraction plates. How Paula was able to manage him so well I can only imagine."

Bret had wondered about that, too. He knew that Collyer was not susceptible to the wiles of designing females. There must be something else . . .

IN a tiny fluorescent disc set in the control keyboard they saw a madly whirling ball of flame take form—the energy center. Chan manipulated the keys until there came a vibrant groan from the power plant as the generators took on a greatly increased load. Abruptly the energy center whisked from view. With the speed of light it was traveling to far-off Vienna to contact that hidden attraction plate.

Almost instantly the purplish glow on the televisor screen spread to illuminate the entire scene with its faint flickerings. Immediate confusion came to the narrow streets. Crowds were seen to gather at the intersections, to mill about excitedly and then to disperse in wild disorder as they were charged by the police.

"It is the silence," Chan intoned, "The energy is made visible to us by my special televisor."

"And the whisper of death," Bret put in. "People are dying there in Vienna, Chan. Have you no compunction in this?"

"What are a few lives in a great change such as this is to be?" Dai's tones were bitter. "The authorities would have had my life had I not escaped them."

The rioting and disorder increased in those streets of Vienna. For a moment it seemed that the crowds would drive back the police in their mad rushes. But

firearms flashed; more lives were added to the ghastly total that was piling up against Tulov and Dai Chan.

There came a screaming hiss from the apparatus and the energy center appeared once more in the fluorescent disc. Instantly the televisor screen went blank.

"Not much from Vienna," said Chan contemptuously, regarding the whirling dervish of forces that was pictured in the disc. Then he pulled a lever and the energy center vanished. The floor beneath them vibrated to some unexplained commotion in the regions below.

"DO I understand," inquired Bret, "that you return your energy center with its acquired load of protons to this point and reintegrate the gold right here?"*

"We do," rumbled Chan. He was busy with readjustments of his apparatus.

"And you have experienced no difficulty in the reassociation with alien electrons from the surrounding atmosphere?"

"Only in the matter of instability," admitted Chan, "And that is where you can be of help, Garrison. Where Collyer might have been of assistance had he been wise enough to keep out of the law's hands."

"You expect me to take part in this mad scheme?"

Dai Chan's smile was frosty. "You have no alternative, respected sir. Tulov is ruthless; he will never permit you to leave this place alive unless you do as he says. You yourself know there is no possibility of escape. You saw the defenses. And no one, outside of those who are here, knows the secret of its location. Not even Collyer; he was working blindly. So you see there is no chance of a rescue. And then there is the process of mechanical hypnotism, should you refuse to help of your own free will."

Bret pondered this for a moment. "Very well," he agreed, "I'll help with the after-processes but not with what you're doing now. I will have no hand in this slaughtering of innocent human beings."

Wayne stared in amazement. Was his friend giving up the battle so easily? It was not like Bret at all; he must be planning something.

But Chan, obviously pleased with the decision, had engaged Bret in an animated and deeply technical discussion. The two scientists were speaking of the constitution of matter, of the hypothesis that matter is energy and energy matter. They talked of protons* and of atomic numbers, of the quantum theory and of Planck's constant,** which has the dimensions of energy multiplied by time. It was all too deep for Wayne Gordon.

He saw Dai Chan manipulating controls anew as he talked; saw the view of another city's financial district materialize in one of the televisor screens. And then he saw that Bret was signalling with a hand behind his back; motioning for him to make himself scarce.

Moving cautiously, Wayne retreated from the room. He would do a bit of investigating on his own account while these two went on with their boring conversation.

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* Proton. An atom is comprised of protons or positive energy charges and electrons or negative energy charges. Protons comprise the nucleus or core, about which the negatively charged electrons revolve. It has been determined that the mass of the proton may be over 1,800 times as great as that of the electron. Thus, these energy centers of Dai Chan's, when returned to his laboratory, carried immense weight in acquired protonic charges, weight almost equal to that of the precious metal which had been purloined.

** Planck's Constant. h equals 6.55×10^{-27} erg seconds, a constant having to do with full radiation and the specific heats of solid elements. Max Planck was a German physicist, born in 1858, who devoted himself to the study of thermodynamics and other branches of pure physics. He propounded the "Law of Radiation" in 1901. This was the forerunner of the "Quantum Theory" and asserted that the energy of radiation is emitted and absorbed in integral multiples of certain indivisible "quanta" of energy, which depend on the frequency of oscillations of the electrons.

CHAPTER VIII

Double Dealing

WAYNE passed on through the great room of the generators without being challenged. An engineer and several mechanics were here, but these paid him scant attention. Having seen him go into the inner room with Dai Chan only a few minutes previously, they were not suspicious.

No henchman of Tulov's was in the anteroom where they had first encountered him. Presumably all were engaged in laboratory tasks in the lower regions or were in the level of the hangars above.

Wayne had no plan. He was merely nosing around to learn what he might. He came out into a long corridor that was cut through solid rock, a tunnel which led downward with an easy slope and was lighted by ceiling domes spaced at regular intervals. Faintly indeed the throb of machinery penetrated to the point.

He had not gone far when he saw a squat Oriental come in from a side passage. Wayne flattened himself to the damp wall in the effort to escape notice. The stocky one was armed with an atomite pistol and appeared to be guarding the corridor. Fortunately, he turned in the opposite direction and started walking away from the spot. Wayne saw a doorway a few feet ahead and in a moment had gained it. He drew back into the shadows just as the guard turned to retrace his steps.

This doorway opened into a second passageway that was in darkness. Wayne felt his way along until he came to a dead end. His fingers contacted cold metal which yielded at his touch. A door. Dim light showed at its edge as it swung silently ajar. And there were voices from beyond. Paula's and Tulov's.

With infinite care Wayne pushed through and closed the door behind him.

A heavy arras covered a niche just inside, providing an ideal hiding place. Behind the folds of heavy material, he drew a breath of relief. He had not made the slightest noise in gaining this point of vantage.

From behind the hanging Wayne was able to command a view of the entire room. It was one of the utmost luxury of appointment, softly lighted and with incense-laden air. Paula was here, languorously reclining in a deep-cushioned ottoman and garbed in a clinging, decollete gown of black lace. Obviously she had moved her belongings into Tulov's chambers.

Wayne bit down hard on his lower lip to stifle the gasp which rose unbidden in his throat. The perfect oval of Paula's face was turned toward him; the dazzling white and jet beauty of her smote him anew. And her lips were parted in a smile that was directed at Tulov's bowed head. She was waiting for the man to speak.

"Well?" she said, throatily, as usual.

Tulov was seated with his back to Wayne's hiding place, but his posture was eloquent of the emotions that struggled within him.

"What assurance have I, Paula," he said hoarsely, "that this is not another of your tricks?" Tulov was half-drunk.

"Only this: I came to you of my own accord, did I not? And into your hands I delivered the one man most capable of doing you harm. Oh, Anton, I've seen the folly of my ways for many months—I——"

"You did not expect to find me here," Tulov accused her. "How could you know of my plans? You expected only to continue your petty negotiations with Dai Chan. I surprised you in Garrison's arms."

"That was part of my scheme to turn

him over to you. And it was, oh, so easy." Paula's laugh chilled the marrow in Wayne's bones. "I tell you, my Anton," she went on, "I did not know of your plan, and this very Garrison is the one who told me. In some way he had ferreted it out. Don't you see?"

TULOV'S head came up with a jerk. "You were always plausible," he rasped. Lurching to his feet, he walked to the cellaret and poured a stiff drink of brandy which he gulped down neat. "And, damned if I'm not beginning to believe you. I never believed you were sincere in your Utopian dreams. You love luxury too much, Paula, and power. The luxury and power I can give . . . The devil!—what am I saying?"

"What I want you to say, Anton." The Kratkin stretched out in the cushions like a contented house-cat.

Tulov was a bit unsteady on his feet, intoxicated with her nearness and with the spirits he had consumed.

"God!" he blurted suddenly, "I can't bear it to see you in the arms of another man. I can't bear it, I tell you!"

Paula smiled seductively, or was it in triumph? "Come to me, Anton," she whispered.

The brute was at her feet then, his hairy paws caressing her. But he heaved himself erect in the next moment and jerked away. "I dare not trust you, Paula," he almost shouted, "Dare not trust myself."

"Why not?" The Kratkin's wide eyes were resistless, her parted lips not to be ignored.

Abruptly Tulov had her in his arms, was crushing her to him.

Wayne shuddered involuntarily there where he was hidden.

After a moment Paula disengaged herself gently. "Anton," she said, "I want you to believe in me; I want, oh, so much to prove to you my honesty. At heart I am a vain, mercenary woman. I am sick of exile and of poverty. I want this wealth and this power. And I do want you—as we used to be. Garrison means nothing to me; none of the others meant anything. They were pawns. Tools. And I want you to do this: keep Garrison in the laboratory with Dai Chan until all that is wanted of his knowledge has been obtained. Then do with him as you will. Meanwhile the crew of his plane and his friend Wayne Gordon as well are to be imprisoned in the deepest vaults. They are plotting against you, to outwit you if they can."

"By the Almighty!" exulted Tulov, "You *do* mean it. And I'll go one better; I'll have them executed."

"No, no." Paula dropped her long lashes and shivered as with a chill. "I hate the thought of death; you know that, my Anton. There has been enough of killing, and I would have you no murderer now. Imprisonment—that is sufficient. Where they can do no harm."

At this moment she was the very essence of tender femininity. Tulov would have granted her every wish.

"It shall be as you say," he agreed huskily, "In the deepest of the vaults."

The brute could be denied no longer.

Wayne crept stealthily from his hiding place as Paula was swept up in those gorilla arms. And a blind fury raged within him.

OUT in the main corridor, Wayne saw that the guard's back was to him. He raced up the slope until he reached a bend in the tunnel and then slackened his pace. He went on slowly toward the main laboratory.

He hardly knew how to proceed. There was no escape from this place, he knew. Organized resistance would be futile. The only exit was too well guarded; there were far too many against them. Besides, they were un-

armed. Their weapons had been left in the arsenal of the ME4—at Paula's insistence, he recalled bitterly. But he must get to Bret with this news of the woman's duplicity. A bare chance, there might be, that something could be accomplished in the laboratory.

Bret and Dai Chan were where he had left them but now were engaged in attention to the visiphone. International Newscasts was on the air with a resumé of world happenings, and the first view and pronouncement that came to Wayne's eyes and ears was so startling that he forgot his errand.

The image flash was of the Wisconsin State Capitol in Madison, a close-up of furious battling on the broad steps of the building. A wave of enraged citizenry was sweeping upward in the face of desperate and withering fire of a company of militia. Then it had passed on through the portals, leaving in its wake a welter of dead and wounded. The din of fighting and screams of victims were cut off abruptly, as an announcer's voice broke in:

"This, ladies and gentlemen, is the eighth State Capitol of the United States to fall to the revolutionists. In Pittsburg and other industrial centers where mills and factories did not open their doors to-day, rioting and bloodshed is even more serious. In many cases the militia have cast down their arms, refusing to fire on their fellow men. It is mutiny; treason. But no one seems to care. The entire country is in the grip of an upheaval that has no precedent in history. And in Europe chaos reigns. Rome, Paris, Berlin—all are in violent uproar. No trading on the exchanges, business at a standstill, people are engaged in an orgy of spending the depreciated currency of their governments. In a moment we shall give you an image flash of London, where the bobbies have things in somewhat better control but where—"

Dai Chan flipped the lever which cut off the newscast. "It is sufficient, resplendent one," he told Bret, "We have now but to wait for the auspicious moment when Tulov will strike at the Kremlin."

STUPEFIED by what he had seen and heard, Wayne listened in a daze. It was incredible that the serenity and security of an entire world had been thus upset in so short a time.

"He will strike at the Kremlin!" parroted Bret.

"Yes, honorable sir, Tulov is to take the Kremlin by force—from the air," Chan explained, "It is there the new world government will be set up. From there order will be restored by Tulov. He is to be the banker of all countries and the ruler of all by virtue of the power that lies in this vast wealth we have acquired."

Bret's long fingers toyed with the elk's tooth that dangled from his watch chain; he was thinking deeply. For sheer audacity this plan of Tulov's was unequalled. And yet there was a good chance of its success. Unless. . . .

Wayne Gordon found his voice. Heedless of Chan's presence and of the atomite pistol in his belt, he burst out wrathfully, "Paula sold us out to Tulov, Bret. She's with him now."

Bret raised shocked eyes in which there was yet a trace of amusement. Chan, the imperturbable, permitted himself not the slightest change of facial expression.

"The Kratkin is a remarkable woman," said Bret softly.

"And Tulov was ever pliable in her white hands," Chan put in.

"But," expostulated Wayne, "they're planning to lock us up in the dungeons below. All but you, Bret. You are to work here with Dai Chan until—"

They were upon him, then, two swarty giants who had entered the room catfooted. Suddenly Wayne found himself struggling helplessly in steel-sinewed arms that had encircled him from behind. Bret made no move to come to his friend's assistance, instead scowling darkly and wagging his head to enjoin peaceful submission. Wayne let his body go limp in the arms of his captors.

Unmoved, Chan said calmly, "Take him away. There is yet much to be done here. Come, Garrison."

THE cold steel of handcuffs closed down on Wayne's wrists where they had pinned his arms behind his back. He felt rather than heard the click of the lock. With the snout of an atomite pistol prodding his ribs he stumbled out of the room ahead of his captors.

They led him through winding and dim-lit corridors to a lift which dropped swiftly into the depths of a damp shaft. Coming out at the bottom, Wayne saw they were in a great arched chamber of masonry where only the electric torches of his guards gave light. A cell was near by, merely a dark hole with a barred door. One of the guards fumbled with a bunch of keys which jingled ominously in the malodorous silence. The barred door creaked shrilly as it swung open.

The other guard thrust the nose of his pistol into Wayne's middle while the one with the keys released his hands. Then he was flung unceremoniously into the cell and its door clanged shut.

"A most regrettable occurrence, Excellency," said one of the swarthy giants, casting the beam of his torch over the mouldy floor of the cell, "Most regrettable, indeed. However, it is the command of him who must be obeyed. We leave you to your meditations."

The electric torches turned away and were bobbing light flashes for a moment. Then they had flicked out. There was the whirr of the rising lift and utter darkness.

Wayne was alone in as gloomy a dungeon as ever was conceived by the tyrants of mediæval days.

CHAPTER IX

Battle

ENDLESS time passed while Wayne paced the floor of his prison in the suffocating darkness. He dared not sit or lie down, for the stone was slimy and crawling with vermin. No sound reached his ears, save the faint thrum of machinery from somewhere above.

He was faint with hunger, having eaten no meal since the previous day, only that one bar of chocolate when he had awakened in the ME4 many hours earlier. He wondered if his jailers would come to bring him food. If they did, that might provide his opportunity to escape. He began to plan, searching every inch of the slippery floor for some object that might be heavy enough to use as a weapon. But the reeking ooze yielded nothing larger than a few small pebbles and a squirming lizard-thing that ran up his sleeve. He shook the creature off with a yell he could not repress.

One of the iron bars of the door was loose in its fastenings. Wayne felt carefully to its upper end and discovered that the rivets which held its flattened portion to the frame of the door were rusted and eaten away. He flung his weight against the bar to no avail. Gripping it with both hands and twisting his legs in the lower bars to gain leverage, he tugged at it with all his might, straining until the bar bent slightly in his grip. And still those rivets held.

There was the sound of the descending lift and Wayne desisted.

He saw the wavering circle of light

cast by a torch; saw two of Tulov's guards battling with a burly prisoner, there at the door of the lift-cage. It was Demetrius, and the big Russian was bellowing like an enraged bull. His captors were having their troubles, even though his hands were shackled behind him, as Wayne's had been.

Wayne mouthed a grunt of utter disgust. This was the crowning outrage of Paula's perfidy. Even Demetrius, who had been her devoted slave, she was delivering into the foul place.

IN the fracas one of the guards dropped his torch to the floor and it lay there, casting its beam the length of the arched chamber. Eery, monstrous shadows of the battling men leaped up in the dark vaulted reaches above.

Wayne saw a pistol butt rise and come down on the Russian's head with a sharp crack. His roarings ceased and the great head wobbled on his shoulders as the guards dragged him past the door of Wayne's cell. Another cell was adjoining, and it was to this they were taking Demetrius.

The keys rattled and door hinges screeched protestingly. Wayne saw dimly the sagging form of the Russian; saw the guard with pistol at his chest, while the other freed the big fellow's hands. And then a surprising thing occurred. Demetrius ducked with amazing agility, and a backward kick sent the one guard sprawling. There was the hiss of an atomite propelling charge and the spattering of a heavy slug against the masonry overheard. The big Russian let out a yell of triumph as his hamlike fist drove home with smashing force. The guard who was still standing was lifted from his feet and hurled against the cell door, to go sliding down into an inert heap. The fallen one's pistol spoke and Demetrius spun half around. He had been hit.

But the wound seemed to slow him not one whit. A vigorous kick sent the guard's weapon flying and he was upon the fellow, shaking him as a terrier does a rat. Then he lifted him from the floor and flung him into the open cell, with such force that it must have broken every bone in his body. Both guards were *hors de combat.*

"Good work, big boy!" exulted Wayne, "And now suppose you get the keys and let me out of here."

The Russian snatched up one of the torches from the floor and cast its beam within the narrow confines of Wayne's cell. He grunted in friendly fashion and immediately went for the keys.

There was needed only a matter of seconds for the release. Then, between them, Wayne and Demetrius bound and gagged the unconscious guards, using strips of cloth torn from their own clothing. The big Russian laughed uproariously when they had them safely behind the bars that had been destined to other uses.

"Now what do you say we have a look at that shoulder of yours," said Wayne. He had seen that the big fellow's shirt was matted with blood, that his left arm moved stiffly and jerkily.

"Ha!" snorted Demetrius, "It is no more zen a scratch. We go now to find zese ozzers. Zey come here, you sink—no?"

Wayne looked around. There were only the two cells in this vault, but he saw that a narrow passage led past the lift into the darkness beyond. Perhaps there were still other vaults—there must be. Armed now, both of them, with the guards' pistols and provided with electric torches and the all-important bunch of keys, they set forth through the passage.

AS Wayne had suspected, the tunnel led into a second vault. And this

one was even larger than the first. There were four cells lined along the curving wall and from one of these a man's voice called out when the beams of their torches struck out through the blackness. It was Reilly, watch-engineer of the ME4. In an instant they had found the key that fitted his door and set him free.

"Warren's in one of the other cells," he told Wayne, "They had to knock him cold to get him in. How the devil did you—"

Wayne jerked a thumb toward the bearded Russian. "He did it," he explained swiftly, "Stiffened two of the swine back there."

He was at the door of Warren's cell then and had it open after trying several keys. The young co-pilot raised his head feebly and blinked in the dazzling light of the torch. His face was smeared with blood and a huge welt showed at the line of his hair. But, luckily, his injury was not serious. They had him on his feet and talking excitedly in no time at all.

There were the four of them now, but only Wayne and the Russian had pistols. But, so far, no news of their escape had reached the upper regions. And there was much that might be done when they freed the other three.

Wayne located another tunnel and they trooped through into a third arched chamber. Smith, the radio man of their ship, was imprisoned here and he swore picturesquely when released. In the midst of his tirade against the yellow devils who had brought him here, there came to Wayne's ears the whirr of a descending lift.

"Psst!" he hissed, "They're coming. Out with the lights and back of the pillars, men. Here!"

His own torch was out as he spoke and the Russian's flicked off immediately afterward. There was the rustling of swift movements as the men secreted themselves behind the great columns which supported the weight above.

"If it's guards with another of our gang," Wayne whispered, "our best bet is to rush 'em just before they get their man in a cell."

A shaft of light struck out into the chamber after that and two of the guards showed dimly in its wake. Between them was a rotund lad who raved and fumed as he kicked out ineffectually with his stubby legs. Carson, second engineer of the ME4.

"ROTTEN yellow devils!" muttered Smith, who was beside Wayne, "Two of them always, against one of us."

Carson was kicking so lustily as to give his captors considerable trouble. Just as they had dragged him to a cell door, his heavy shoe contacted one of the guard's shins, bringing a grunt of pain. Instantly the fellow's arm drew back and his pistol butt started down toward the unprotected head of the prisoner. But it never reached its mark, and it was the guard's last act, for there was the sharp hiss of a pistol and the sickening thud of a slug that struck him fairly between the eyes. Demetrius was a dead shot.

Carson, taking advantage of the second guard's confusion, brought his knee up sharply into the pit of his stomach. That was the signal for a swift rush from the shadows. Before the guard was able to fire a shot they were upon him. A moment later he was trussed up like a turkey and gagged with a greasy cloth that Reilly produced from a pocket of his flying suit. Wayne locked him in the very cell that had been intended for Carson.

There were two more pistols now, two more torches. Warren, groggy from that blow on his head, was the only one unarmed.

Wayne took heart. With Kelly now, and the weapons of a couple more guards. . . .

His thought was rudely broken by the sharp hiss of atomite and a cry from the Russian. Over there at the far end of the chamber there was the momentary silhouetting of those other two guards Wayne had been considering. Then all lights were out. In the hollow silence that followed, Demetrius whispered laboriously in Wayne's ear:

"Zis deffil hit me—hard. But Demetrius neffer miss. You haff only ze one to—"

Wayne felt the big body go tense beside him and then relax. With grim determination he wormed forward on his belly. A light over there flashed momentarily full upon him. He rolled swiftly over, only a fraction of a second after the hiss of atomite. A slug caromed off the stone floor and sang spitefully before spattering on the wall.

"DON'T shoot, Gordon!" Warren's voice came huskily out of the darkness behind him. "I saw Kelly; he's using him as a shield."

Wayne rolled over once more as the light flashed anew. Atomite hissed twice in rapid succession. The breeze of a slug fanned his cheek. And now the guard's torch held its gleam steadily. Wayne sprang to his feet and flung forward, zig-zagging as he ran. Slugs whined all around him for an instant. And then, in the dimness back of the light, he saw Kelly's body heave up under his captor's arm. Spoiling the fellow's aim, the fearless Irishman! Wayne covered the intervening distance in a single bound; yanked the guard to his feet before he knew what was happening.

It was all over in a second of time. Wayne grappled with the guard, clamping the wrist of his pistol hand in fingers of steel. The lights of his friends bathed the scene on the instant. He brought up a right that started from the floor and landed on the guard's chin with a sound like the noise of a breaking board. It lifted the swarthy one to his toes. His eyes glazed and he went down in a twisted heap. They disposed of him as they had done with the others.

Releasing Kelly from his handcuffs, Wayne saw that the other of his two guards needed no gag or bonds. He had been drilled neatly between the eyes. Remembering the Russian, Wayne ran back to where his huge body was stretched.

Demetrius opened his eyes at sound of his voice and white teeth gleamed through his bushy whiskers. "I go now," he sighed, "And you, my friend, will . . . I leave ze woman Paula in your care. . . ."

The faithful watchdog would never know that his mistress had betrayed them all. The brave soul of him had quitted its bulky shell.

Wayne bent over and picked up the pistol that had dropped from the limp fingers. Slowly he turned and handed it to Warren.

"There are six of us now," he said solemnly, "and we're all armed. What do you say we go up after the rest of these swine?"

Unanimous approval greeted his words. But Kelly sobered instantly after raising his voice with the others.

"It'll be a great battle," he said quietly, "but we haven't a Chinaman's chance, Gordon. There's hundreds of those devils up there in the hangars and machine shops. Fighters, all of them."

"I know—we're trapped. But, hell's hinges!—anything's better than rotting down here in these dungeons. And Bret may figure out something in the laboratory."

"That's right. Where *is* Garrison?" asked Kelly.

In a few words Wayne told them what had happened. "And we might be in a way to do more than we think," he went on, warming to his subject, "The laboratories and Tulov's quarters are separated from the upper regions where they had you fellows at first. My idea is that we get Dai Chan and his gang first, then Tulov. That would be easy. And Bret'll have a free hand in the laboratory then. Maybe he can scare up some sort of scientific weapon to lay out all the rest without even going above the laboratory level."

Kelly's leathery hide wrinkled in a smile and a gleam of enthusiasm lighted his eyes. "It's a grand plan," he declared, "Let's make it snappy."

With swiftly rising spirits the little party crowded into the lift that would bear them aloft.

CHAPTER X

The Last Whisper

THEY came out into the corridor that communicated with the anteroom of the main laboratory. Wayne, on familiar ground now, led the way to the room of the humming generators. Only two men were here and these were at the engineer's desk, their heads bent over a blueprint. It was a simple matter for Carson and Smith to creep up behind them and throttle them into submission. A simpler matter still to shove gags in their mouths and truss them up. The way to Dai Chan's sanctum was clear and not a sound had risen above the purr of the machines.

Leaving the others to guard the outer door, Wayne and Kelly went on to the inner room. At the entrance they stopped in amazement. Bret Garrison was here, standing stiffly with hands raised high. Before him, with his back to the door, was the power plant engineer and he was covering the tall scientist with an atomite pistol. Dai Chan was nowhere to be seen.

Bret saw the intruders, but did not betray his knowledge by so much as the raising of an eyebrow. Wayne, moving forward silently in his soft shoes, brought his pistol butt down on the engineer's head with terrific force. The fellow dropped like a log. And Bret was quick to snatch up the pistol which had threatened him.

"By George!" he cried, "You've done it, Wayne. I had a hunch you would." He looked out into the generator room. "And the whole crew with you. This is better than I'd hoped."

"Where's Chan."

"In Tulov's chambers. An alarm rang here and he left this one to guard me." Bret moved the engineer's unconscious form with his foot. "It couldn't have panned out better. We can get to work now."

"Get to work?" Wayne could only stare.

"Yes—what I had hoped to do. The radio, Wayne. We can have the air fleets of the League here in a few hours. And, until they arrive, we seven can hold the laboratories against Tulov and his whole gang of cutthroats. Only the lift shafts and one ladder-well connect with the rooms above. I can cut off the power from the lifts—here." Bret indicated a switch on a nearby panel. "And the ladder-well can be held by two men. No trouble at all is my idea."

"And the gold?" asked Wayne.

"Is here—stacked in vaults underneath. Bars similar to those of its original form. When atomic stability is attained, it can be taken away by the ships of the League and returned to the nations from which it was stolen."

"Then—" Wayne hesitated. He saw

that Bret had planned well and that Tulov's dream was shattered. It had needed only the strength and courage of Demetrius to start things off—to make this possible.

"Then," said Bret, "the present sickness of our world can be cured in a very few days." Already he was at the panel of the powerful radio transmitter, sending out a location signal that would be picked up by the direction finders of the League.

Suddenly Wayne thought of Paula. That she-devil would find a way to upset things. She. . . .

But a commotion had risen out there in the generator room. Smith came running to the inner room.

"A guy out here," he panted, "A Burmese—or—Chink or something—he's dying. Wants you, Garrison."

IT was Dai Chan. He lay face down in the anteroom, his turban awry and clawed fingers clutching at the floor. Gently Bret turned him over. Chan's eyes rolled until only the whites were visible.

"Garrison," he choked, "The silence—and the whisper—it's back there in Tulov's rooms—"

"The center is there?" Bret asked in awed tones.

"—there, yes—with Tulov. Ahh!—the whisper—a bat's wings fluttering—"

Wayne started. It was the self-same simile that had been used by the first victim he had seen.

Dai Chan shuddered and was still.

"Sa-ay!" exclaimed Bret jerking up his head, "I wonder—" He rushed in through the aisle of throbbing machines, Wayne and Kelly following.

They watched as Bret manipulated the controls of Dai's apparatus; saw the moving of indicator needles over the dials as the searching ether waves reached out. And then a whirling, dancing thing glowed in the fluorescent disc of the keyboard. Bret pulled a lever and the energy center flicked out of sight.

"It's safe now to go in there," he muttered.

And they all trooped after him as he went out through the power plant and hurried along the corridor to Tulov's quarters.

It was a gruesome scene that greeted them in the room that still was redolent of incense. Anton Tulov lay sprawled across the table to which he had staggered in order to ring the alarm in the laboratory. His stiffened fingers were but a few inches from the button he had managed to press in his last moment of life.

Paula Kratkin was stretched on the ottoman with negligee carefully arranged about her magnificent body, as if she had laid herself there to await death calmly. A peaceful smile was on the chiseled marble of her face and her slim white hands were crossed on her bosom.

ON a silken cushion at her side lay a gleaming bar of gold. Her wedding ring, a narrow band of platinum, reposed in a small depression on the upper side of the bar.

The silence in the room was as complete as if radiated from one of the deadly energy centers.

Bending over suddenly, Bret raised the bar of gold and took a folded paper from underneath it. A projecting corner had attracted his attention.

It was a penned note, in the painstaking chirography of Paula Krakin. He read it aloud in solemn tones:

"To my dear friends, Bret and Wayne:

"What I am about to do is the one thing I can do in atonement and in revenge of my poor son, Krug. I have

sent Anton to the vaults, telling him that I must see the gold with my eyes, must gloat over it and fondle it with my hands. He is completely fooled.

"You, my dear Bret, showed me the way. Unwittingly, it is true, yet unerringly. Paula does not forget.

"There is the one thing more I must set down ere he returns. Collyer is innocent of this thing. Knowing he could not be beguiled, as can most men, I arranged for the kidnaping of his daughter. His help was to be her ransom. She is safe in my Mexican retreat. I asked you to cause his arrest, knowing he would be safe then from Anton's agents, who would surely have slain him. Tulov does not know of the kidnaping, nor do his men.

"You will find a list of Anton's agents in his desk. The key to the secret drawer is in his pocket. My own lists are in Mexico; this letter will be Carlos' order to deliver them into your hands. You will know what to do with them, my friends.

"And know you this, I go willingly and gladly. May God have mercy on my soul. Paula."

BRET looked for a long time into the placid features of the dead woman when he had finished. It was difficult to believe that the life, which might have been so great and noble, had ended. The others of the men stood around in a hushed, respectful group. Wayne was censuring himself that he had believed Paula capable of the treachery she had seemed to commit and which he had attributed to her.

At length he said huskily, "I still don't understand it all. How this thing was done and why we were imprisoned."

Bret explained while they were returning to the laboratory. "The one thing I was sure Dai Chan had not learned," he said, "or Collyer either, was this matter of stored energy in the reintegrated gold. You will remember that Chan mentioned the instability of the material after reassociation of electrons. Well, it is merely a question of the self-degradation of a small portion of the atomic structure. A process that continues approximately forty-eight hours after reintegration and in which not more than one per-cent of the material transmutes to mercury by unavoidable loss of newly acquired electrons. Mercury is next lower in the atomic scale you understand. So far there is only a slight loss and no danger whatever. But I learned—quite by accident—in my own experiments, that the process may be halted abruptly by contact with the 'gold' of platinum, which is the next higher element in the atomic scale—"

"Paula's wedding ring," exclaimed Wayne.

"Exactly. I had told her of this, Wayne, while you were unconscious aboard the ME4. Told her, too, that this contact of platinum causes a sudden release of stored energy and the formation of a new energy center. A reversal of the original process. I hadn't anticipated anything like this, though—it never entered my mind. But Paula didn't forget."

"No." Wayne mulled this over in silence. After a while he said, "But our imprisonment—why did she insist on that?"

Bret was at the radio transmitter, preparing to send out word to Washington. "It was the only way she could protect us all and still make away with Tulov and those above. These laboratories and vaults—the latter because they are directly underneath—are neutral to any kind of radiation. Such insulation is necessary in any laboratory of electron-

ics. Paula knew this as well; knew we would be safe from the energy she was to release, provided she could get us all in these portions of the workings. And she used the only means she was sure would get by with Tulov. He was only too willing to lock you fellows up and to keep me here under guard of Chan and his men."

"Demetrius, too," husked Bret, "Only he played in bad luck."

"Do you mean to say," Kelly put in, "that all those in the upper levels are wiped out by this whisper thing? All the mechanics and pilots and fighters?"

"Every last one of them, you'll find. These secondary energies are enormous." Not liking to contemplate the slaughter up there, Bret turned resolutely to the control of the transmitter.

Kelly whistled. "A graveyard, then, is it. A morgue. And done by a woman."

Bret's voice rose monotonously at the microphone. He was calling the Science Bureau Station in Washington. On the open wave band now, since there was no longer the need of secrecy.

A LITTLE later Wayne relaxed at a table in the laboratory dining room. Reilly and Carson had gone foraging for food and had found this place and the kitchen. Wayne relaxed because his hunger was at last comfortably appeased, and because already things were beginning to straighten out back there in the world they had left so far behind. His round face resumed its usual cheerfulness of expression.

They were all here excepting Bret, who had eaten his meal quickly and returned to the radio. Bret was always in a hurry. Warren, Kelly, all of them were here at the table. Wayne leaned back and cleared his throat.

"Now, when Bret and I were in Bagdad—" he began, and looked around. They were listening, all of them, so he continued with his story.

Wayne Gordon liked nothing better than to tell of his experiences. And at last he had an audience.

THE END.

The Notorious "C39"

By JACK O. BEARDEN

WILLIAM 25E48 was looking out the rear port of his Fiat sport-rocket at the huge, lumbering bulk of the space-liner, "Tellurian," of the Solar Transportation System, Inc. It seemed hard to believe that in less than two hundred years the human race had developed their transportation from the so-clumsy machines that they had called airplanes, somewhat resembling the modern aero-cars, to huge projectiles carrying ten thousand people between the planets at the rate of seventy-five thousand miles an hour (earth time).

But here, he must not forget his mission, that of following, uncovering, and bringing before the all-powerful Solar Council a criminal, known only as 'C39.' This was the task given to William 25E48 as a point of honor and a test to a new man on the famous Interplanetary Secret Police. On that liner was one of his suspects. In a moment Bill, as his friends affectionately called him, was back to himself, the typical hard-headed and hard-fighting member of the "Secrets."

He manouvered his machine over to the "Tellurian" and dropped down upon the hull of the larger craft. The air-lock opened and he dove through the opening into the dark bulk of the liner. He was led to the control-room, deep in the heart of the tremendous machine, where he was met by the Captain, George 59X22, as fine an officer as ever had charge of a space-liner.

"Do you know, Captain," Bill remarked after introducing himself, "I am on one of the toughest assignments ever given to a member of the Secret Police. I am after a man who is wanted on three worlds. He is the master-mind of all modern crime. It is said that a perfect criminal would never leave any clues; well, the 'C39' is almost the perfect criminal. In all the hundreds of crimes charged against him, and many of which I have no doubt that he committed, he has made only one slip. He made that slip while pulling that radium-convoy from Mercury. He always gasses the crew of a ship before looting it, and so no one has ever seen him, but on this job he had occasion to burn some of his papers while on board. There was one scrap that was only partially burned. The name and the ante-numeral were gone but the post-numeral 'C39' was still readable."

At this point he was interrupted by a messenger appearing at the door of the room.

"What is it?" demanded the Captain, somewhat irritated.

"A message from earth-station 87, sir," came the reply.

After reading the flashgram the commander handed it to Bill, who read it aloud as if to better understand it.

" 'Captain George 59X22 in command of Solar System ship "Tellurian." Notorious criminal known to Secret Police as 'C39' is believed to be a passenger on board, request to hold suspects for the authorities on arrival at Mars.' Well, this substantiates my suspicions. Now let us start a search of the ship and see if we can apprehend the criminal."

"Right you are," answered the Captain enthusiastically, "The sooner started the sooner finished. We have nine thousand, five hundred and eighty-three passengers this trip. The one thing in our favor is

the indelible shoulder numbering system that was started some hundred years ago. No one can give a false number because the lawful number is tattooed on the right shoulder immediately after birth.

"A look through your passenger lists has convinced me that our man is on this ship. I find three with the post-numeral 'C39,' a rather unusual coincidence, finding three together. Two are men, Robert 18C39 and Frank 104C39, and the other is a girl, Catherine 76C39," stated Bill.

"Robert is all right, he is the son of a very dear friend of mine," said the Captain impressively.

"I am glad of that, for my task is greatly simplified. Frank and Catherine remain, and I think that we may leave the girl out of it as impossible. Thus, we get our man, Frank 104C39!"

The commander ordered him brought in.

"I have the partially burned scrap, which I am going to show him and I wish you to watch his reaction. Here he is."

"Your name is Frank 104C39?" asked the Captain.

"My name is Frank and you can see the number on my shoulder, but why am I brought here and questioned?"

"You will know soon enough," cried Bill enthusiastically as he held out the evidence, "Have you seen this before?"

Before the bewildered man could answer the question a voice was heard from the doorway to which their backs were turned. "On the radium-convoy for earth from Mercury. Now, don't turn if you wish to be healthy. Throw that scrap back toward the door and then put your hands up." The voice was husky and had a mocking tone.

As he obeyed William glanced at the shiny plate of his wrist identification-tag and caught the reflection of a short but rather bulky figure standing in the doorway with a vibrator gun in hand. So this was 'C39'!

Bill thought quickly, if he attacked and failed, his body would be torn to pieces by the vibrations; if he was successful he would get promotion and a half-million dollar reward. "Duty" was the by-word of the Police. He would try, and should he fail his name would go on the hero-list, he would go for a worthy cause. If he had not decided to try he would have been branded a coward and a traitor to the service.

As quick as a flash, he spun on his heel and dove for the legs of the mysterious figure. The gun went off with a stunning crash, but the waves of force went over his head and partially demolished the opposite wall. There was a brief struggle and then his strong, young muscles overpowered the unknown, who presently found himself strongly bound in a chair guarded by the Captain.

As Bill eagerly reached forward to remove the mask a little cry escaped the prisoner. Amazed he stepped back, but the Captain tore open the coat and brought to view the under-tunic, the left shoulder bearing the number 76C39. The criminal was a girl, Catherine 76C39!

* * * * *

"Young man, you were right in having the Solar Council turn that girl over to me," said the great brain-specialist, James 7R18,SD. "She has a marvelous brain, one of the finest that it has ever been my pleasure to test, but under the skull was a small tumor, no doubt caused by an accidental blow on the head, that pressed on the brain in such a way as to give her mind a queer turn toward crime-mania, and when she committed a crime she used her enormous intellect to aid her, thus she came to be one of the greatest criminals of the present day. Now, with this growth removed she will be normal within a year and become a very useful member of society."

"I hope you are right, doctor," smiled William 25E48, "for, you see, she is my sister."

The Battery of Hate

By JOHN W. CAMPBELL, Jr.

We can only publish a limited number of stories and that implies a limited number of authors. But we believe we share in our readers' appreciation when we give them a story by a favorite writer. Mr. Campbell is certainly very highly enjoyed in his work. In this impressive narration he finds plenty of action within terrestrial boundaries. The end is quite exciting.

Illustrated by MOREY

CHAPTER I

BRUCE KENNEDY looked delightedly at the ampere-hour-meter on the laboratory bench, at the voltmeter, and finally at the ammeter. Then he drew out the notebook from the left hand desk drawer and carefully wrote in the new entries.

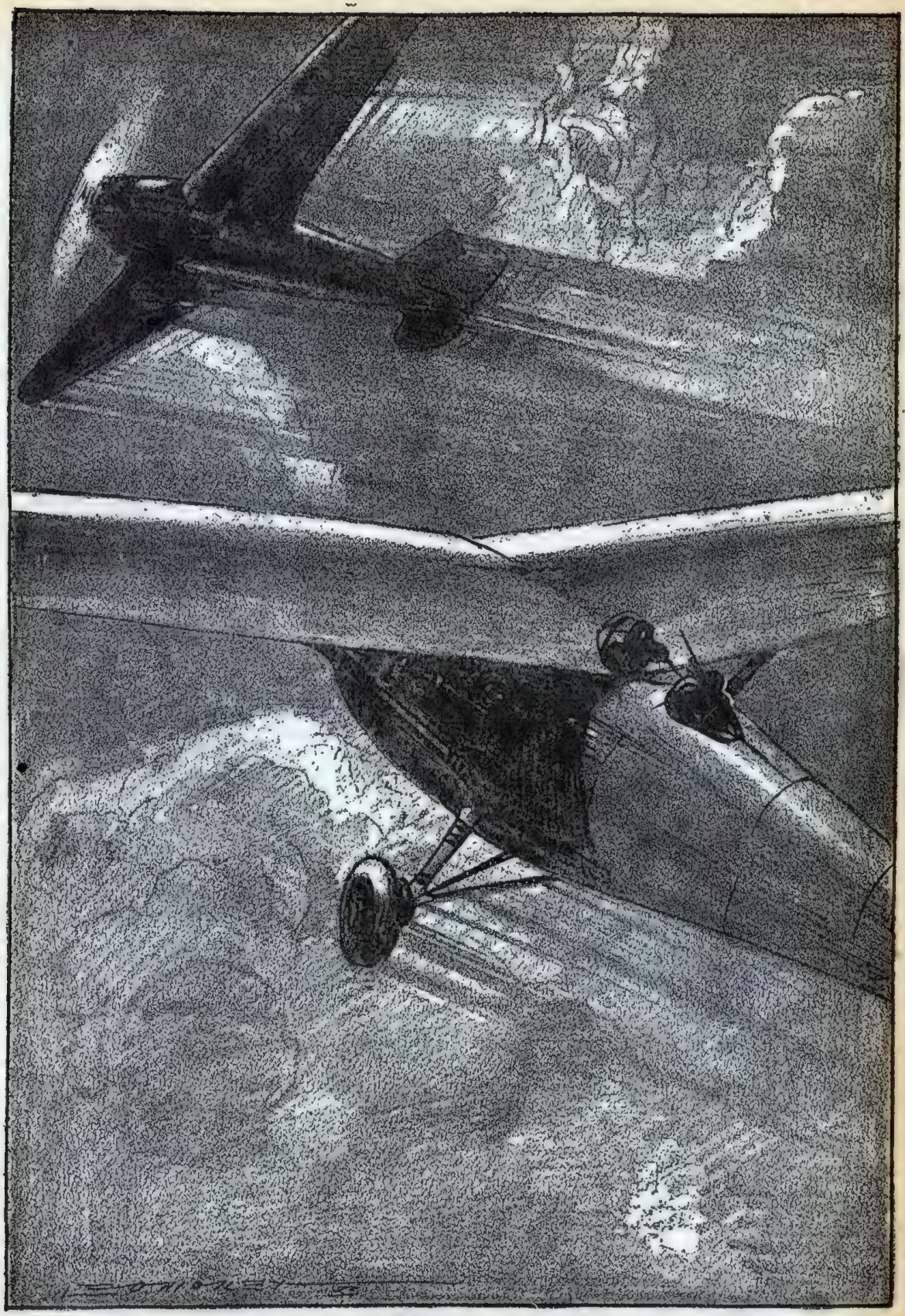
"Wednesday, May 28, 1938, nine-thirty A. M. Ampere-hours, five thousand, six hundred seventy-two; watt-hours, twenty-three thousand, eight hundred twenty-two; volts, four-point-two; amperes, eighty-five. Sweet spirits of nitre, isn't she a brute for work!" He looked happily at the squat, black case on the floor, two feet long, eighteen inches wide, and two feet high. A small, humped projection at one end seemed the source of a faint whine that filled the cellar-laboratory. A mass of heavy leads ran from two thick copper terminals at the top of the black case, up to the table which served as a laboratory bench. Over on one side of the room, where the angle of the concrete cellar wall joined the wall-board, a pile of unused apparatus of various sorts was heaped in disarray. Inductances, voltmeters, heavy resistance coils, all the apparatus of an experimenter in electro-physics. On the concrete wall sections of shelves had been placed, holding rows of various chemicals; in a rack on the floor below the window that let a patch of bright golden sunshine on the floor, hung a dozen curious rectangles of a black, lustrous material. They were just the shape of the end of the black case on the floor, plates for the battery evidently, black, lustrous plates, soft black graphite.

To one side of the door through the wall-board was a frame of pipes, and, attached to it by porcelain insulators was a network of wires, that resembled a gigantic electric toaster. A plate of zinc hung behind it, evidently protecting from the heat the more or less combustible wall-board, which had, nevertheless, been scorched slightly.

The room was terrifically, uncomfortably hot, though both door and window were opened, for it was a warm May day, and the huge heater certainly did nothing to alleviate the temperature.

Kennedy wiped the perspiration from his forehead, happily however, and smiled down at his battery.

"The fuel battery—the ideal source of power! Electricity directly from coal—or graphite. Electricity produced so cheaply nothing can compete! Electric automobiles ten times more powerful and a hundred times simpler than the best today—electric airplanes, noiseless and unfailing, because an electric motor has just



The gas plane rose swiftly, and above the electric plane drew quickly nearer. The gravitational altimeter was rising rapidly.

two bearings and a magnetic field. These batteries won't fail—they can't.

"Lord, the world will be a better place, I guess." He smiled, and stretched himself ecstatically. Some men get more pleasure out of proving the world isn't a bad place, and making their fellows like it better, than from cornering the means to bring what pleasures the world already has to themselves. Bruce Kennedy was one of the first kind. He smiled whimsically at his "toaster" now. "You were all right when I started these experiments last January, but May in New Jersey, and you don't get along. Guess it's time to test those batteries on a refrigerating machine." He stopped, as still another thought struck him. Success was here and the thousand and one tiny, but irritating problems were ironed out, and now the great problem of its use came before him. "Another thing people will have—home cooling will be worthwhile when electric power comes at 'ten dollars a ton!'"

Bruce Kennedy saw the good his invention of the fuel battery would bring the world. A plate of graphite, cheaper and more plentiful than coal, down there in the Archiazoic Period, oxygen from the air, a plate of copper, plated with a thin layer of gold merely to collect current, and a cheaply made solution. Power. Power as he said, at "ten dollars a ton," for the air was free, the graphite alone had to be renewed. The little whining motor, run by the battery itself, served to force the bubbles of air through the solution, to keep it saturated with oxygen.

So Bruce Kennedy blithely set about patenting the great invention, and making himself an electric automobile to be driven by these super-batteries. Had someone pointed out to him the terrible path of hate and bloodshed that lay ahead of that squat, rounded block of power on his cellar floor, and ahead of him, he would not have believed it, for he was young enough to think that men worked for the good of men, as he himself did.

CHAPTER II

MARCUS CHARLES GARDNER, large, very friendly, and popularly known as M. Chas. Gardner, the big power of finance, was looking in some surprise at his secretary.

"What? Who's this wants in? What's he got that's so important and confidential, he can't tell you?"

"I don't know, for of course he didn't say, Mr. Gardner, but he's one of your patent examiners. It might well be important."

"Oh, well. He might have waited till later in the morning anyway. Everybody knows I hate to do or listen to anything important before lunch. Send him in, it probably isn't much."

A small, shrewd looking man came in. His clothes were very neat, and very somber. He looked like a successful lawyer, and was one, a patent lawyer.

"Mr. Gardner?"

"Yes," replied the magnate.

"I'm Peasley Jamison, as you have seen, and I have some news I am sure you will want to hear. Perhaps I should not be certain, perhaps you will certainly NOT want to hear it. At any rate—" He smiled at the bigger man ironically, "there's a new invention. I've been watching for it for the last twenty years, hoping I'd get hold of it. Hardwell and Thomas got it, new firm, not big at all, but they tied it up beautifully. Very skillfully drawn patent. Very pretty work."

"I," said M. Chas. Gardner angrilly, "don't give a damn how beautiful it is WHAT is it."

Still the lawyer did not seem content to disclose his mystery. "I believe you have control of North American Super-

power? And proxy-control of most of the oil fields of the country?"

"Yes, what of it?" Gardner was beginning to be wearied.

"If you can, sell out, and do it QUICKLY," snapped the little man. Gardner suddenly looked very much more alive.

"Eh, what? What in hell is this invention?"

"You wouldn't know if I told you. It's called a fuel battery, invented by a young man by the name of Bruce Hollings Kennedy. It's a device that can produce power directly from graphite, and it gives it as electricity, the most adaptable of all powers."

"Well, why not buy it?" snapped Gardner.

"Because, my dear man, you haven't money enough to pay adequately for it," smiled the little lawyer.

Gardner looked startled. That was the first time, in some twenty years, any one had told him he hadn't money enough to buy what he wanted. "What? How—Why I'm worth at least a billion."

"Could you get that billion in cash? No, you could not. Neither could you buy that invention. Even if you could, what would you use it for?"

"Why not in power plants, which is the natural answer. Tear out the boilers and generators?"

"Because it generates *direct* current, which can't be shipped along a line readily, because there won't be any power plants when any man can make his own, as he now owns his own cellar furnace, and lastly because that is only one of the very minor possibilities. Do you know what's going to happen to the oil companies? There won't be one where there are hundreds now. There aren't going to be any gasoline burning, oil wasting, smelly, greasy, troublesome gasoline automobiles any more. They'll be electric, and a gasoline motor uses two quarts of oil for every drop an electric motor needs on its two bearings. Gasoline is going to be so cheap they'll pay to have it carted away, and save the insurance."

GARDNER laughed. "I hope the rest of your predictions are as empty. I've seen electric automobiles and their batteries. Now and then you can see one having a furious race with some spavined truck-horse."

Jamison's tight-lipped smile returned. "Did you ever see a hundred-and-fifty-horsepower electric car? I did, I went to Florida to see it. I was one of the few who saw it, and knew what it was. Kennedy built one. He went one hundred and seventy-five miles an hour. He said later he got scared, and had to stop."

"One hundred and fifty won't do that," said Gardner keenly.

"One hundred and fifty gasoline won't," Jamison acquiesced, "but one hundred and fifty electric is something different. You've seen electric trucks haven't you? Some make a good twenty-five miles an hour—with two horsepower.

"A gasoline engine is in a constant state of explosion, which means it wastes ninety-nine per cent of its power on noise, heat, friction, and waste motion. An electric motor has two bearings, no explosions, no noise, no waste motion, and almost no heat."

"You mean the automobile is doomed?"

"I said nothing of the sort. It's going to have a new lease on life, but the gasoline car is going out the way wooden battleships did when the *Monitor* and the *Merrimac* called it a draw. Battleships didn't go out, but wooden ones did.

"Gasoline is out, oil isn't needed, power stations won't be wanted, how about iron and steel?"

"Still safe—except that new types of refining will be introduced. Gas for

cooking won't be wanted, which will finish the oil fields."

Gardner had been looking at his desk, thinking deeply, his head in his hands. He looked up slowly. "My God, man, he'll ruin the world! It's going to ruin ME. I won't have a cent left after this panic gets over." His face was going white. Oil—dead! Power—dead! Automobile corporations—save one—dead!" His voice took on a cold, steely menace.

"I've GOT TO BUY that patent! Get out." The lawyer left the great man brooding, staring out at New York sweltering in a late September heat. But he didn't see New York, he was seeing the things that would happen if this invention was sold. His comforts would be stripped from him, his yacht, his home, his apartment—and another apartment—everything. He could not get out, for the instant he started selling heavily enough to make a practical retreat, the word would be out, and he would be swamped, the market would drop to zero—everywhere—he'd be cleaned out as his pyramided loans collapsed——

God, but he hated the man who invented that battery!

CHAPTER III

BY the next morning Gardner had decided to try his one hope for salvation. He had not slept that night, and his face was lined from lack of sleep, his eyes were blood-shot, and there were patches under them. He knew he stared ruin in the face if he did not succeed today.

At the office he rang for his secretary at once. "Arthurs, I want to locate Bruce Kennedy; try this address, and see if you can get him here before lunch."

Robert Arthurs looked surprised. He had found out quickly that the patent lawyer's visit yesterday had upset his employer badly indeed, but he had not learned how. But now he was again violating his hitherto inviolable rule—he wanted to see some one before lunch!

Nevertheless it was nearly eleven-thirty before Kennedy arrived. Arthurs went into Gardner's office at once. "He has come now, sir," he announced. No need to say who had come, Gardner had been asking him about it all the morning.

"Ahhh—send him in! No, wait. What does he look like?"

"About twenty-five, sir, six-feet I should say, weighs about one hundred eighty, I should guess, powerfully built, intelligent, well mannered, soft, deep voice. Clear eyes, brown, and brown hair. Good looking, and seems very anxious to see you. I took the liberty to mention it was on the matter of an invention of his, and he promised to come at once."

"Damn! Why did you—oh, well, perhaps he'll want to sell. I may be able to get it reasonably——" Gardner seemed lost in thought. "Young you say—probably no more money than he needs?"

"Oh, no sir, he is young, but Bradstreet says he's worth close to a quarter of a million. His father left it, an old mining claim that petered out, that is gold mining, was reopened shortly before his death. Some one sold him the mine as a gold mine, salted it first, it seems, and shortly Mr. Kennedy found a genuine vein, but when it gave out he left. He had gone west for his health. Five years ago he sold it for a quarter of a million as one of the rich tungsten mines. He would have gotten more, but it was inaccessible."

"Thank you, Arthurs. Excellent. That may help in talking to him. Send him in, please."

Kennedy came in smiling. "I don't know just what this call is for, Mr. Gardner, though your secretary mentioned a patent, and I have only one."

"That was the one; I heard of it through a patent attorney of mine. You seem anxious to get to business. The great man smiled disarmingly.

"I am, I guess. I got the patent only a few days ago, and have been getting ready to attempt marketing it."

"Have you offered it anywhere?"

"Yes, but no one has seen it," Kennedy admitted ruefully. "They didn't believe."

"That is a model?" Gardner asked, noting the small satchel in his hand, not unlike a doctor's bag.

"Right." Kennedy opened it, and took from it a miniature battery such as that still working in his home in New Jersey. He pushed a button, and a small motor hummed feebly, rapidly gained power and speed, and finally settled down to a steady whine.

"The blower—air is needed to supply the oxygen for combustion of the graphite. This battery simply burns coal electrically instead of thermically. The energy that would come off as heat in a furnace comes as electricity. Furthermore, it uses graphite, the natural form of free carbon. Coal can be converted to graphite in electric furnaces cheaply, now that electricity will be cheap."

"That might run a flashlight," said Gardner skeptically, "but it wouldn't replace a dynamo."

"THAT would run an automobile," smiled Kennedy, "and it, or a larger one, would easily replace a dynamo. The case is steel, with black enamel baked on. It is a strong, tough battery. The solution, which is the real secret of course, is cheap, and like the solution in the ordinary lead-acid storage battery, lasts practically forever, with the occasional addition of water. The solution in a storage battery is renewed by charging, that is renewed by the current forced through it."

"How much do they cost?"

"This one cost me five dollars to build, but if you build a hundred thousand they would cost about one hundred thousand dollars."

Gardner whistled softly. "What's the trouble with them?"

"Why—nothing!" replied Kennedy, puzzled and annoyed.

"Lad, there is nothing in this world that's perfect. Automobiles run out of gas, storage battery plates shed, generators overheat and burn their insulation. What's wrong with them?"

"Oh, well—graphite is soft, and somewhat brittle. I've been using very high grade artificial graphite, which leaves practically no ash, but in commercial power plants they would have to use cheap, natural graphite, and add an ash tray of some sort. That would mean draining and refilling at periods. The cheaper the grade of graphite, the more ash."

Gardner nodded slowly. That certainly was not a serious objection. "But in automobiles—don't the plates crack, and break?"

"They were mounted on springs and sponge-rubber in the car, and mine haven't cracked yet."

"I understand the metal plates are gold-plated," said Gardner at length, and that sounds expensive. How can you make the set for a dollar?"

"They give away gold-plated razors," Kennedy reminded him with a smile.

"Well, I'm convinced. You had a model at the Patent Office, and they accepted it, so it must be O. K. What do you want for your patents?"

"Mr. Gardner, I don't want to sell them. I want backing. I want five million dollars worth of backing, but I don't want to sell the patents. I want to put this on the market."

Gardner's face did not change, but he was going to have those patents. He HAD to have them.

"I offer you *one million dollars*

cash for those patents," he said slowly.

Kennedy's face fell. "I'm sorry, Mr. Gardner. I had hoped we could do business. I am not selling."

He put the bag on the desk, and returned the battery to it. Again Gardner made an offer, and though he tried as much as five millions, Kennedy would not sell.

"Good God, man. WHY won't you sell?" he demanded at length, just as Kennedy started for the door.

"You own heavily in power and oil, Gardner. You are making money in it, and this invention is going to change things. I want to hold these patents, and see that that they are *used*. This is an invention that is not going to be suppressed. If necessary I can start in a small way myself." Kennedy went out.

Gardner settled back heavily in his seat. Kennedy had not been angry, simply immovable, he had decided, and the decision would stand. He knew that type of man.

Presently color returned to his face, and he sat there steadily looking out of the window, while his secretary refused all comers. He did not eat, and it was nearly two o'clock before he moved again. Then he hurled himself into action at once.

"Arthurs," he said sharply, hurriedly," "get Jimmy Blake and Bob Hill in here. Tell 'em it's worth their while."

In ten minutes, from other parts of the great building, the two men came. They listened, and paled while Gardner talked. In the end, scarcely ten minutes later, they nodded, and started for their offices.

Two and a half billion dollars set about crushing certain stocks and bonds, marshalled and directed by three of the keenest minds in the Street. In the short time remaining that day, those stocks were crushed so low that they were almost valueless. They were the stocks in which Kennedy's money was invested.

But there remained some ten thousand dollars in Government Bonds, and a few thousand more in some of the finest industrials that even Gardner and his friends had not dared to assail, they were so solid.

CHAPTER IV

THE dining room of the very exclusive club was a beautifully furnished place, paneled richly an air of quiet and impressive dignity, almost of over-aweing dignity, lent a quieting effect that hushed voices tending toward raucous volume. Lung-power is frequently well developed on the floor of the Exchange.

Gardner was talking to a group of friends at his table, and as he finished the dessert he chuckled to himself. The group of hand-picked friends looked at him admiringly.

"Well, Charlie, what is it? Whom did you fool today?" asked Wainwright smilingly.

"Nobody, Bob, nobody. Somebody tried to fool me." The great man chuckled again. "Come on down to the smoking room, and I'll tell you the story of a patent."

"Well," said Caller, settling himself between Gardner and Wainwright, five minutes later, "here we are, waiting expectantly for your tale." He bit off the end of a cigar, lit it and settled back comfortably.

"A man came in to see me yesterday morning, with a great idea. He was going to put all the power plants in the country out of operation. He had invented, and patented, a sort of a wet dry-cell, as far as I could make out, from his cautious statements. The only things he said that weren't cautious and as discreet as one should be when selling a

patent to the man who is scheming to rob you, as he decided I must be, since I wasn't enthusiastic, were his claims." Gardner permitted himself a hearty laugh.

"Well, he had a battery that was like a big dry-cell, only it was wet, and he wanted to put that in place of generators, just have a lot of big batteries instead of generators."

A general laugh was interrupted by Wainwright. "Well, you bought it up, of course!"

"No, but would you believe it, the fellow was really quite surprised and put out because I didn't. His point was that it was more efficient and didn't require a lot of boilers and generators. He evidently neglected to figure the cost of his metal plates—oh, by the way—the plates had to be gold plated!"

"Gold plated batteries for power houses! Good Lord, why didn't you call up the Psychopathic?"

"And direct current at that, you know. He'd have us using cables like those in the George Washington Bridge to ship power!"

"Who was this genius?"

"Ah—let's see——" Gardner pulled out a notebook and consulted it a moment. "Oh yes, fellow named Bruce Kennedy—the inventor of the gold-plated wet-dry-cell for power-houses!"

The talk veered after that, and shifted to many other subjects, and Gardner left, to go back to his office and make certain the stocks he had depressed stayed there.

His work had been done, and, he felt, well done. None of those men he had talked to, the most important on the Street, would touch that battery now. That was a clever touch, he felt, mentioning the gold-plated plates of the battery. By to-morrow every man on the street would know the story, and be laughing at it. Kennedy's stocks would be useless to him, he could not build the things himself, he would try to get help, and help would not be forthcoming, he had turned on that battery the heaviest bombardment he could find—the bombardment of ridicule that will blast asunder the greatest hopes and the wisest plans.

* * * * *

KENNEDY sat morosely behind the wheel of his car as he drove slowly along. The Holland Tunnel seemed crowded, and the comet of yellow light he followed and kept pace with seemed as elusive as his hopes of selling that idea to some of the big men who could have supported it.

Out of the tunnel, up the ramp, then up and across the Meadows, past the lights of the Newark Airport. He turned off, and cut across country to the southwest, avoiding the city ahead. His low, grey coupé hummed softly along the road, and as he got free of the heavy traffic he opened out a bit, the accelerator went toward the floor. The smooth whine of the powerful electric motors mounted in *crescendo,* and the road began to flash back at higher speed.

Automatically he followed the road back to his home, for in the past week these trips had become automatic. His name had been sent into the sanctums of the great, and it seemed almost as though something discreditable had been known of it, for, invariably it came out almost instantly. He had not seen one of the men he had wanted to see, and still his stocks hung so low on the market he could not sell them for the money he needed.

Suddenly he sat straighter, and the swift-moving car swerved slightly under his hands. "And I almost forgot——!" He smiled happily.

Bob Donovan! Just a short while ago he had thought of Bob Donovan as one of his best, and poorest friends. Bob's father was rich, distinctly so. But he had gotten rich by his own hard work,

and had every intention that his son should do so. In fact, the stipulation was that until Bob could gather the sum of ten thousand dollars in one year, by his own efforts, the estate would not be his, and the interest would simply add.

Then Bob had succeeded, and in just one week that year would be up! In that time, he could not have transferred his estate of better than five millions to stocks, which Kennedy was beginning to distrust.

A little town appeared ahead, and the swift, grey car slowed down, the motors taking on a peculiar whine as it did so. The car became momentarily warmer, as the motors acted as generators, throwing their current into heating resistance coils.

Before a drug store the car stopped, Kennedy locked the car and went into the shop.

He telephoned a telegram to the nearest office, and came out smiling.

It was an hour later when he reached his house, garaged the car, and went in. A telegram awaited him.

"GOT ESTATE AT LAST STOP VERY BUSY AND CAN'T COME STOP WHAT DO YOU WANT
BOB."

Another half hour, and Bob Donovan was looking at a yellow slip with the familiar strips of letters.

"NOT HALF AS BUSY AS I AND YOU CAN COME ONLY YOU DON'T KNOW IT STOP LEAVE ESTATE AS IT IS AND COME STOP FOR GODS SAKE DONT BUY STOCKS STOP I NEED CASH AND YOU WANT MORE COME STOP INVENTION BRUCE"

Bob Donovan frowned, finally grinned, and called his lawyer. Then, having gotten that immensely annoyed gentleman out of bed, and arranged to leave the estate as it was, he sent a telegram—collect.

"YOURE ANNOYING ME STOP COMING TO ANNOY YOU AND WONT STOP BOB"

Apparently he was very anxious to carry out his threat, for he hired an autogyro, and covered the two hundred and thirty miles from Boston in an hour and thirty minutes. It was then after four A. M. and he greatly enjoyed getting Kennedy out of his comfortable bed.

"Well, look who came. I see you lived up to your promise didn't you?" said Kennedy slowly.

"SUCH a greeting, such a greeting, and from one who invited me. Don't you know, my lad, that I'm a dignified and important millionaire, and that little boys with inventions should go to the millionaires, and not make the millionaires come to them?"

"Shut up. That's what I've been doing all the week. You never wrote me or let me know you'd inherit that estate, and you almost missed out. I've been running to millionaires trying to sell them the idea of backing me, but the only man who would see me wanted to buy it, and it isn't for sale."

"What is it?" demanded Donovan.

Kennedy led him down to the cellar, and turned on the lights. "I haven't been connected with the city power for three months now," he explained, and pointed to a long black case aganst one wall. It was far larger than the small experimental battery he had been working with in May, and leads from it connected the house wiring. "That's the invention. Ive installed electric heaters in every room, and you noticed I turned one on when you came. It's chilly these late summer nights, and already they are useful. That combines my furnace, power and light, and my gas connections."

"What is it?"

"Battery of course. Do you remember my lectures on that subject before we left school? I've been working on it now

for three years, and I got it at last. That's the result."

Donovan started, and wheeled on his friend, his blue eyes opened wide in amazement. "FUEL BATTERY! You did it Bruce! And I'm backing you for all it's worth. How much do you want, why didn't you back it yourself?"

"Bob, I'll tell you. I told Gardner about that, he seemed to have heard I had the patent, and sent for me. He wanted to buy, but I wanted backing, so he wouldn't agree. I told him I could get backing elsewhere, and if necessary do it myself. That afternoon my entire group of stocks, save for a few of the biggest companies, where I owned comparatively small amounts, laid down and went to sleep. They are still sleeping. And I haven't seen anybody else."

"Is that so? And what do you think happened?" Bob's eyes squinted slightly at his friend.

"I don't know. I thought Gardner might depress the stocks, but he couldn't keep his enemies from seeing me."

"Couldn't he? Why couldn't Columbus get anybody to back him when he tried to sail to the Asian coast?"

"Everybody laughed at him—but——" Kennedy's quick mind began to understand, and see the laughing points. "And do you know, this thing has gold-plated metalic plates."

"That's the answer, Bruce," nodded Donovan. " He probably told them you had some sort of an oversize dry cell with gold plates that you wanted to replace the power plants with. Tell that to a group of friends as a joke, and the whole financial crowd would know it in a day. The only support you'll get, according to his lights, is from him, and he wants to buy. What are you going to do?"

"Do—why build a plant and start manufacturing if you'll let me. Your estate hasn't been taken out of bonds and banks and real estate has it? He can't depress the price of government bonds, and banks still have to pay cash. We can start manufacturing anyway."

"Manufacturing what? Flashlights? We won't be able to borrow, Gardner and his pals have too much influence, and five millions won't do a lot. We need five hundred millions and we could get it in a day after a few big demonstrations—if Gardner weren't opposing us.

"If we manufacture flashlights, or anything little, no one will ever believe they will work in a big size."

"No, and by all the planets, I'll wreck Gardner! He can keep banks from loaning, he can keep brokers from investing or offering stock, but he can't keep you from using your own money, if you will. Listen—all we have to do is to make a few thousands of those over there, and sell them to private owners! I can make one of those for about one hundred and twenty-five dollars on a quantity basis, and they cost about five or ten dollars to install. Their one difficulty is that they give D. C. and all modern radio sets use A. C. and the television sets use the A. C. power lines as a third circuit for synchronization.

"But there aren't many television sets yet, and there are lots of D. C. radio sets. We can get G. E. to make some sort of a heater for rooms that works on 110 D. C. and then we are set. We can sell to suburban homes. How many women would like to have electric ranges, if the power were only as cheap as gas? How many men would like to have a heating system that would warm the house in ten minutes in the morning, and could be turned on with an alarm clock that would work every time. Our greatest, in fact only, difficulty will be the electric clocks and radio sets.

"But look what happens: We steal a lot of Gardner's power customers, we bring the battery sharply before the public, not

as a flashlight power source, but as a genuine source of practical power. Farms will buy them for power, then small cities will see that the municipal plant could use a big set.

"Then there will be the next step—automobiles. I'll show you one to-morrow, mine. I made better than one hundred seventy down at Daytona Beach, but I got scared, I guess, and cut the power. It has two motors, and a big battery under the hood. The motors are in the wheel. I reversed the usual system, and have a revolving field with a stationary armature. The wheel is the field."

"You're right, Bruce. We can—and will!

"Now let's sleep."

CHAPTER V

MR. CHAS. GARDNER looked up from his work, at a tiny red light that appeared suddenly in the frame of a picture on his desk. He looked across the study, toward a long oil painting. He hesitated a moment and punched at something on his desk, the lock, apparently of one of the drawers. A faint click was the response, and the oil painting opened inward. A slim, black-haired man with sharp black eyes stepped quickly into the room, and the painting returned to its frame.

"Chief, they beat me. Gawd, I never saw anythin' go like that grey coupé of his. He got a friend wid him. I dunno who it was."

Gardner's face flushed quickly. "Cazoni, I told you to put some men on him!"

"Aw, Chief, I did but, hell, the guy went into dreamlan' about two in the A. M., an' the guy was tired as hell, so he pulled out. I had another torp on the job about five, an' it was dark. How'd we know anybody came. They——"

"Fool! I told you to change men so he wouldn't know he was trailed. He found it out, and beat you! Imbecile!"

"Aw, Chief, I did change men—plenty. I dunno how he found out, but anyway, that friend must a slipped in at night an' how was we to know?"

"What happened this morning?" demanded Gardner.

"About six-thirty the man on the house—Tony, ya know, he got Chi to take his place, and got some chow. It was after seven 'fore he got back, an' Chi was mad an' beat it. Nothin' happened though till about ten, then they—only Tony thought he was still alone, he sent away that house-keeper a while back, and has her come in every other day—well, they got breakfast, then about eleven two guys came out, an' went to his garage and got out that grey car of his. Ya know, it looks like hell, no lines at all. Looks like a model of 1930. Big square-front radiator, posed headlights—got pants on the wheels though. Well, we didn't think it could move worth talkin' about, and we had a big Packard 16.

"Well, they start out, an' light for the north. They go nice and easy up the Hudson, cross above the Big Town, cut toward the coast again—an' hit the main Route One north. It was early in the afternoon and it was a week-day. They lit out, man how they moved. Tony picked me up, when he saw where they were goin', an' I was with him. That boat of mine will do 120 any day easy. But that old grey can was doin' 100 by the time we could hit eighty, and was so far away we couldn't see it, when we hit bettern'n a hundred. Chief, I never saw anything move like that did. That boat of mine acted like it was a balky truck beside an airplane.

"We gotta get a boat like that, Chief, before we can keep him in sight. What kind is it, daya know?"

"So you lost him. Lost him just after

he found some friend. What did the friend look like? Tony say?"

"Tall, blond, good-lookin', looks like a college friend of this guy's. Looks slow, but Tony says he moves fast, dropped somethin' an' it never hit the ground. They had a big black box that made the springs move when they put it in, but this bird handles it easy. Guess he's strong. Kinda slim though. 'Bout five-eleven or six-one, somewhere in there."

"College friend, eh? Headed north on Route One, and just ran away from you? Keep a plane handy after this, and use a short wave set to keep in touch," ordered Gardner. He paused in thought. "And find out who that friend is, and *locate Kennedy!* Get that? There's more in this than in the rest of our business. The car—he made it! The thing that made it so fast is what I want. It's cost me five million dollars on the market already to keep him from getting some support! Now do you know how important that is?"

GARDNER'S eyes blazed at his lieutenant. Jimmy Cazoni whistled softly. "Five millions! It's worth that, eh?"

"No. It's worth a hundred times that!" Gardner spoke tensely. "DON'T LOSE THAT MAN WHEN YOU FIND HIM!"

"We won't, Chief," promised the gangster. "How about an accident to that car—wouldn't that help?"

"No. It would be worse, if anything. He and a friend of his named Robert Donovan made exchange wills, I believe. Neither has any relatives, and they fixed it up a couple of years ago. Some kid stunt, I guess, but it holds. And this Donovan——" Gardner broke off with an exclamation of dismay! "Donovan—Boston—Route One—Good God! That Donovan just came into a fortune of five millions, and he could give that man support!

"Cazoni!" he turned his eyes sharply to the slim black-eyed man, "Get men on the look-out in Boston. Try first at —" Gardner searched hurriedly through some papers, and found the letter he wanted—"409 Marlboro Street, Boston. This Donovan owns the place—apartment house I believe, and he's been living there. Keep Tony watching, and if he recognizes the man, send me word. Now beat it, and MOVE!"

Cazoni started rapidly toward the painting, but Gardner called him back. "Wait—let Nannery take over the other business, and don't bother me. I'll be busy, so he can handle it himself. This is more important."

Cazoni stepped in front of the picture with a word of agreement, the frame clicked, the picture swung back, and Cazoni disappeared.

"Thank heavens I have an organization I can depend on in time of need," piously declared Gardner. "With those two together, I may be able to get somewhere." He smiled approvingly.

* * * * *

"Well, do you believe in it Bob?" asked Kennedy, as the grey coupé swung to the curb in Boston. The whine of the motors died, and the parking lights went on.

"Sweet, little brother, sweet. I never heard so pleasant a sound as the hum of those motors. Even when we hit 140 they hummed, and there was no engine vibration. How long can you go on one set of plates?"

"About three thousand miles, Bob. I carry a spare set, as well. Remember that I get eighty-five per cent efficiency from those plates, and an electric motor is better than ninety per cent efficient."

"What a thing for an airplane motor!"

"I've been wanting to try it, but I made this first, as easier and safer to experiment with."

They were getting out their bags, and

walked across the street, into the apartment. "I have a plane now," said Donovan softly. "Or should have. Lockheed promised it to-day. It's a special stratosphere racer with high-altitude Diesel. How much would batteries and motor weigh?"

Kennedy's eyes were bright. There was more fun, more enjoyment in the experiments than the constant disappointment of the business. He calculated rapidly. Presently he frowned slightly. "Hard to say. The batteries increase in weight for desired cruising range. I should say eight hundred pounds for one thousand horsepower and ten thousand mile cruise, but with every additional two hundred pounds another ten thousand miles of spare plates can be added."

Donovan whistled. "The engine and charger alone weight one thousand pounds, fuel additional, and the power declines from eight hundred horse at sea level to three hundred at fifty-five thousand feet. Any decline in your scheme?"

"I'll tell you, I don't know, I've never tried it, you see. The composition of the air as fifty-five thousand is about the same but the density is easily arranged —just a pump, and the batteries use one anyway. Simply make it larger. Or better, have them in the fuselage and keep air there."

"NOT so good," replied Donovan, sitting down in a chair, "because air has weight, and it will just mean that many more pounds of thick air to carry with us. But will it work?"

"I'll bet I can get at least nine hundred at any height the plane will fly."

"Let's have supper and then we'll see," suggested Bob.

They reached the field after dark to find that the plane had been delivered, a five place stratosphere plane, the air-tight cabin with its double walls streamlined with a beauty that seemed to make the plane move even when at rest. The great radial Diesel, surrounded by the Venturi cowling and the bulge of the supercharger alone seemed to break the lines.

"No cooling on an electric motor," muttered Kennedy, "but that's the prettiest thing I've seen in years."

"It'll be prettier," replied Donovan. "I'm going to take it up now though and then be able to see the difference."

"I'll get busy, the Lockheed man is still here," replied Kennedy, and stuck to his decision.

Before they left the field that night, men were at work unshipping the heavy Diesel and the fuel tanks.

The next morning they went to see James Montgomery, of Montgomery, Harrison and Flagg, Donovan's lawyers.

"So what we want," Donovan concluded, " is your advice, help, and perhaps if you wish, a partnership with us."

Montgomery shook his iron-grey head and laughed. "Couldn't make it—your lawyer. Corporation law. Want to incorporate don't you? What's the title?"

"Kennedy Fuel Battery, Incorporated," replied Donovan instantly.

"Kennedy and Donovan," said Bruce insistently.

"Kennedy Fuel Battery is better, it's your battery."

"And your money."

"All right, give me a show for my money will you, I say Kennedy Fuel Battery," grinned Donovan.

"Now the next question," interrupted the lawyer, "is whether you have any money, Bob. If what Kennedy suspects is true, you'd better draw out of banks before they close. I can believe it, because that's Gardner's way of fighting."

"Why—what do you mean?" asked Donovan in surprise.

"About a quarter of a million of your money is still in banks, due to the orig-

inal trust, and another million due to the fact that it is changing hands. If Gardner suspects you are lending help, he can readily tie up those funds—break the bank if necessary, close it for examination of books, a number of things. Get out of that, and buy—Government Bonds, I guess would be the best bet."

"Do it," nodded Donovan.

But it was easier said than done. They acted quickly, taking the largest deposits first, finally coming to the smaller. They did not get four of these, totalling one hundred and seventy-five thousand dollars. The rest were in bonds already, and unassailable.

"He had moved. How under the sun did he know so soon?" asked Kennedy helplessly as they left the doors which bore the announcement that payment had been temporarily suspended.

A short, heavily built man across the street could have told them. He ducked into a drug store and telephoned as the grey coupé started down the street, a powerful black touring car following it.

"'At's him. Mus' be this Donovan all right. What is he, a cop? No? Soun's like a cop's name," he reported.

Presently he was walking rapidly across the Common and made his way toward Marlboro Street.

M. Chas. Gardner had given another order.

CHAPTER VI

GARDNER listened to the somewhat metallic voice from the telephone, and cursed softly to himself. Donovan had beaten him to his banks by minutes only, and now there was practically the whole of his fortune in a condition he could readily use. Further, it was in bonds, bonds that could not be driven down in value, and Gardner realized that no amount of juggling would get those funds frozen again.

Further, the companies with whom Donovan would place orders would accept the orders—but loans—— He would have to have some loans if he wanted to make the batteries on the scale that would be demanded. To manufacture batteries for power plants would require more than a few millions, particularly as only the small, municipal plants would be available to him. Gardner himself controlled the big plants that could have given saving orders. Automobiles—no, he could control that. Laughter! The bomb that would explode any plan among the giants of industry, the men that gave orders in the thousands of units, hundreds of thousands of dollars. Unless he started a new make of car, and that meant months of designing, more months, years, perhaps, before the public accepted it. Flashlights—that was the place for batteries, but there were no millions in that, and it would do enormous damage to Kennedy's invention. Flashlights and million horse power power-plants don't come in the same thought.

No, Donovan would be tied for some time yet, and Gardner decided, as he hung up the receiver, that the campaign of ridicule must go on. It must spread to Boston, to other cities. So on that day men from his office went to various cities —to tell a joke!

They were sent to financial centers to do some business, some reasonable excuse was given, but everywhere the tale of the golden battery was told.

But that was not enough. A second report reached him soon after they left. "Kennedy Fuel Batteries" was being incorporated. The next order would have surprised even the not easily surprised Montgomery. Gardner went home to give the order, and he used a private telephone, which was not listed, to call an unlisted number in Boston, and a second unlisted number in New York City.

"And remember, Gazoti, *be careful to*

have that pen fob first and do that second one right! If you fail me in that, Cazoti ——" Gardner's voice was harsh.

Cazoti understood, and assured Gardner things would be "fixed up."

Gardner was worried, horribly worried. He had spent thirty years in building up the colossal machine that he represented to the world, and nearly five years building up that secret, deadly machine had more than once, aided in the smooth passage of the greater machine. It had grown out of one of those rough passages. At the end of the depression in 1933 a certain man had threatened the horizon, a black cloud of storm that seemed about to sweep away those pyramided loans, toppling already. That man had been murdered—mysteriously.

But never before had so serious a menace appeared. This was, he knew, a Hydra of Business. To lop off one head, he knew would be useless, unless he could fasten himself firmly in its place. Those patents—the patents that he must control;

They meant millions to him, if he could get them, but he was growing old, and these younger men were thinking faster than he now, forseeing his moves. They meant millions if he could get them, but if he didn't——

And all he wanted was peace!

CHAPTER VII

WHEN the large battery in his cellar had been made, dies and patterns for the parts had been cut, and as they were by far the most expensive parts in the construction, Kennedy had made twenty complete sets. As a result, the batteries for the plane were readily put together, a freight plane making the trip down to New Jersey and back with them. In the meantime the powerful, light, electric motor was easily obtainable, for that was practically standard equipment obtainable at once.

They ripped out the fuel tanks, and the engine during the morning, and in the afternoon the batteries were set up in their place, electric heaters were installed, and electric motors powered the compressors, that would maintain atmospheric pressure in the cabin.

Nearly the entire day was spent at the field, working on the ship, and night was falling when at last they were ready for the trial.

Wainwright, the Lockheed engineer, had been a great help in the work, for he knew the plane thoroughly, and the tensile strains the various members could safely resist. And now that the plane must be re-licensed, he offered to go with them to testify as to its fitness before the Inspector of Aviation. To reach the government official, they found they would have to go to his home in Quincy, and the three men crowded into the grey coupé.

Across Boston, out through the Jamaica Parkway, and finally swinging into the Cape Cod Superhighway, the grey coupé moved leisurely.

Behind it a large black sedan with New York plates moved along at an equal pace. As the two cars swung out on the eight-lane concrete super-highway, the powerful sedan spurted ahead, rapidly cutting down the quarter-mile lead. Presently it swung across the round of the speed-lane separation rib. The two-lanes high-speed concrete with its banked curves opened out before it, and almost simultaneously the grey coupé shot forward with swiftly rising speed, and struck the high-speed lane.

But the black sedan was wide open, its powerful multi-cylinder engine roaring gently through the muffler. It flashed rapidly faster.

"Lord, this boat can move. I could scarcely believe you when you told me about it," said Wainwright, watching the

speedometer move steadily across. Eighty —one hundred——.

"Still rising," smiled Kennedy, watching the road ahead. The speed lane was practically deserted, though the slow lanes were fairly well travelled.

A whistling roar mounted suddenly from behind them, and a great black shadow moved up beside them, and passed them with a speed a full twenty miles an hour greater. But as it drew alongside a dull popping, like a whole carload of champagne bottles, a burst of dull red flame, and a metallic rapping burst out suddenly.

Three machine guns were discharging high-velocity lead at the driver of the little coupé! The car suddenly fell off, a whine changed to a hum as motors suddenly became dragging generators, and the car wavered in the road. With an added burst the black car with the New York plates drove ahead!

Kennedy's face was white, his hands clasped on the wheel with an intensity that made them as white as his face. Wainwright's eyes were opened wide, and staring. Dovovan looked slightly sick.

"I—I didn't guess that. Good God, how did they miss us?" he asked weakly.

"They didn't," replied Kennedy, a slow grim smile touching his lips. "Look." His groping hand found a heavy wrench on the floor of the car, and wielded it heavily against the clear plate of the windshield. The massive wrench was nearly torn from his hand, as the windshield bounced it back—the glass unharmed!

"I built for accidents. Experimental, you know—reinforced the frame and the body to protect me, used an accident-proof, and incidentally bullet-proof window I discovered, but forgot in the discovery of the fuel battery." The grim smile of tight lips persisted. He turned to the slow lane, maneuvered over to the right, and cut into the Circle.

"Wait—where are you going?" demanded Donovan, his face relaxing rapidly.

"Back, brethren, back, where they can't try again. "They'll use a truck next time, and I can't guarantee the resistance of the machine to that."

"That's where they'll look for you," Donovan stated sharply. "Go back to the next circle at your highest speed, now you've started, then turn, and run back on your course a second time toward Quincy. We'll do the business we started on, and they'll be looking for us somewhere else."

Kennedy nodded, and the grey car swerved over to the Boston lanes, turned quickly to the high-speed lanes as they passed sixty miles an hour, and mounted till they were whining down the road, the motor's song a faint scream, a curious blurbing sound of air gurgling like a brook over rocks as it passed the car. Somewhere behind, and rapidly falling further behind a police siren warned them to slower speed as a police speedster tried vainly to reach them. The wind howled protest, and the speedometer quivered at 150.

They slowed rapidly, swerved into the low speed lane, across to the Circle and turned back again on the over-pass to the Quincy lanes.

"It seems Gardner has other systems as well," said Kennedy drily.

"What will they try next?" asked Donovan wonderingly.

"Well, we don't sleep in this bullet-proof car, and even it isn't proof against a good big truck. Also, if we take that plane up they can feel sure it isn't coated with armour plate as this machine was—by accident."

"If I were you two," said Wainwright unhappily, "I'd take that plane, and go so high in the sky I couldn't be seen, and I'd move out of this town, and get lost. I'd lots rather have my life and the several millions you already have, than to

lose the one, and have the other mean nothing to me.

"Anyway, you can leave me here with Thompson. I'll take a train back. They might try again."

Half an hour later, Donovan's plane had been relicensed, and with the necessary papers, Kennedy and his friend started back to Boston. But they circled out, swung well to one side, taking back roads and finally coming into the city from the direction of Newton. They used Donovan's thorough knowledge of the infinitely complex city of cow-path engineered streets, and twisted through the hundreds of one-way streets toward the air field. It was midnight when they arrived, and Donovan agreed with Wainwright that Boston was not a health-city for them.

They displayed their papers, the plane was wheeled out of the hangar, and the Field Manager gave them the take-off signal. Instantly the propellor spun into whirring, vibrationless life, the plane leaped across the ground with a startling suddenness and pulled forward with utter quietness. Its landing and running lights flared brilliantly on the ground for a moment, then almost before they knew it, the high-lift stratosphere plane was winging its way steeply aloft, the tremendously powerful motor dragging it upward.

"Great guns, Bruce, this motor pulls like a rubber band. It's so smooth you can't feel it, there's no sensation of moving, only a steady pull—and this 1,000 horsepower of yours is way off. It must be three thousand. I have it cut way down, and she's still ready to pull the bolts out." Donovan was ecstatic.

"One thousand ELECTRIC horse is 'something else.' A gasoline or oil engine gives 1,000 horsepower, when the cylinder is exploding, and runs on momentum for a while. This gives one thousand horse every instant."

"Another plane taking off," smiled Donovan. "Let's give them a race up."

As a matter of fact, the instant the two men had appeared on the field, and started for their plane, a crew of five men started for a powerful two-place racer. The racer was rushed out into the open, two men took their places in the cockpit, and one at each wing-tip, while the fifth quickly wheeled an electric starting truck into place at the nose. The powerful electric motor whined as the ratchet gripped the propellor hub, and the engine spun slowly. It was a gasoline plane, faster at the lower levels without supercharger, faster at higher levels, for it was lighter. The engine caught, barked into roaring life, and the starting truck was hauled away.

But here the plane lost out. For five full minutes it rested, its wheels chocked, its wings held while the engine warmed up. The electric plane leapt into the air gracefully while they waited, and the lights shrank into the skies.

The gasoline plane was designed for a ceiling of but thirty thousand feet, and was therefore far faster than the stratosphere plane, with its enormously larger wings, and far greater pitch. The gasoline plane rose from the field with a roaring engine barking occasionally in misfires, the exhaust darting back in red flames. It climbed steeply and swiftly, the slots in its wings open, as it fairly stood on its tail, and let the motor drag it up by the nose.

Two men in the plane; one a pilot, skilled in the daredevil stunts of pursuit and fighting, the other a little sleek-haired man with cold, black eyes, smoking a cigarette he could not taste in the backward sweep of a biting wind-stream. Nestled against his shoulder was a curiously heavy rifle, with wide flanges along its barrel, and a drum-magazine built into the heavy stock. A broad plate on the stock distributed the shock of the kick across the entire right shoulder. It spit

viciously a few times in trial bursts, the sound drowned in the roar of the great X type motor, its twenty-four cylinders barking rhythmically now.

It climbed swiftly, far more swiftly than the heavy stratosphere plane with its weighty, air-tight cabin built for five. Twelve hundred horsepower flowed out the propellor shaft, and fought the rapidly chilling air. The pilot waved a hand, and the gunner behind slipped a headset over his ears.

"We'll catch 'em, Mug. They got somethin' new, I hear. A Diesel doesn't take the warmin' these gas buggies do, but even they can't take off cold, the way that bird did. I heard somebody say they had a thousan' horse motor. We got twelve hundred, and a lot lighter plane. They've got a couple minutes start—and twenty thousand feet to go before they hit our ceilin'."

The gunner nodded. He didn't realize, as the pilot did, but did not mention, that the stratosphere plane would gain rapidly in climbing speed after they left the denser air below twenty-thousand, while the power of the gasoline plane would be rapidly sapped by the scant air, the wings, designed for lower altitude than the larger machine, would begin to lose the advantages they held now.

The gas plane rose swiftly, and above the electric plane drew rapidly nearer. The gravitational altimeter was rising rapidly. Presently the gunner tried a few rounds in the direction of the plane, tremendously high velocity bullets, moving more than two miles a second, little larger than a thick pencil-lead moved upward, and sung swiftly into the night.

Donovan was concentrating all his attention on his instruments now, while Kennedy read the indicators that told the conditions within the cabin. The soft, gentle snore of the electric motor, the louder scream of the twirling propellor alone sounded as they climbed.

"Batteries working perfectly, Bruce," said Donovan briefly.

"How's that other plane?" asked Kennedy. "The air and temperature normal?"

"Gaining on us. Low altitude plane, I guess, and gets better speed than we can hope to."

"Try more—oww! What the——" Kennedy cried in pain in surprise, and looked at his leg. A trickle of blood oozed from a tiny puncture in his calf, the muscle was exceedingly sore, and a second tiny puncture on the other side showed something had passed completely through the flesh.

Quickly his eyes sought the metal wall, and he saw two minute holes in the sheet duraluminum. "Bob, I've been shot! That plane is shooting at us! A pencil-bullet went through my leg clean, and passed right through the plane! Use all the power!"

"What!" Donovan looked quickly down, and saw the sudden intermittent flashes from the machine below. "Right—machine gun. I'm afraid of this power here—but I'll have to!" He pulled the rheostat control back smoothly, and the gentle hum of the motor mounted swiftly to a driving, tearing whine as the controller reached its limit. The heavy plane tugged forward, with a sudden acceleration, and the entire fabric of the all-metal plane creaked under the strain of the great power.

"A thousand electric isn't a thousand gas, or Diesel either, Bruce. She's pulling," said Donovan. Bruce Kennedy was busy already with an iodine solution bottle and a bandage. The minute punctures of the clean, swift-moving bullet had closed up already, and stopped bleeding.

The plane below was falling behind now, as the larger plane pulled viciously under the great moror. The speed was still rising, though the power from the batteries remained the same, the hum rose to a scream as the motor ran swifter.

Kennedy listened critically. "Bob—that propellor! It's all right for 1,000 gas or internal combusion power, but remember an electric motor can, like a man or a steam engine, dig in its toes and heave, so to speak. A gas engine, like any explosive power, works the first time or not at all. That thing's going too fast. One can exert enormous power for a few seconds—the other has no such reserve."

It was, and Donovan cut the power slightly, still the pitch rose, and more rapidly now. Suddenly it seemed to shoot swiftly up the scale, the shriek of the propellor became a terrible roar, an ear-shattering, threshing blast.

"Shut it off!" roared Kennedy, uselessly, for his voice could not be heard. Donovan had already done it, and yet the mad propellor continued to shriek.

With the suddenness of a brake, the thing stopped whirling madly, and an instant later the white-faced Donovan threw on the motor again.

"Too much—reached the speed of sound, and simply went faster than the air could flow in. The plane below gained a sort of caritation."

The dark silhouette of the other machine stood out nearer against the lights of the city. Pulling with all the power the metal blades could handle, the other machine still gained.

"Fast—and light. About twenty-five to thirty-five thousand ceiling. We're at fifteen thousand now, when we reach twenty we should be able to pull up," said Donovan.

Kennedy merely reached over and pulled the master light switch. The lights of the machine died, and a starry sky, moonless, alone shed light on them. "Let's not advertise. The bullets have no ceiling."

The plane shot on, riding higher, while the dark mass below circled more blindly now. There were occasional very high clouds and it was hard for the pilot to keep track now.

His hand waved again, and the gunner took up his headset. "Fool! You hit and warned them. I can't follow them easily now till we get above 'em, and can see 'em against the city lights. They can spot us though."

"Aww—maybe I punctured their tanks. If they lose the engine-juice they won't climb high. Anyway, I mighta got one of 'em."

They continued silently fighting for altitude, while the pilot wondered vainly what had happened. For a moment the heavy plane had pulled away from him readily, then there came a terrific roar such as he had heard only once before, when somebody put gasoline in the fuel oil tanks of a Diesel plane, and the engine exploded. Yet after a moment the roar stopped, and the machine continued unharmed, faster than before, but still slower than he climbed.

Now he was following blindly, for only occasionally could he make out the form against the skies.

He looked anxiously at the luminous altimeter dial. Eighteen thousand. The heaters in their suits and gloves were on now, and the engine was losing power. A dribble of oxygen kept his head clearer. He had to catch them soon—or not at all. He never saw such a plane as this. It took off cold, flew perfectly, and without trouble. The high altitude propellor handicapped its power here, and the high altitude wings didn't help. Yet the power of the other had not diminished a whit. The engine of even the stratosphere plane should have lost somewhat. But it hadn't.

And the noise! What had that been?

Suddenly he saw the plane again, half-thousand feet above and climbing easily, faster now. The pilot saw he would never gain now. The plane was entering its own element and he was approaching his

ceiling. The altimeter quivered at twenty-one thousand.

His hand went up three times quickly. The plane vibrated sharply, and the wings stood out suddenly in reddish light. The roar of the engine drowned the crackle of the machine gun, but he knew it was working. The dark shape above did not falter, and through the headset he heard a thin crackle of curses. The light on the wings flickered steadily for a long time, and the pilot himself cursed softly, and started down. The fool gunner had gotten himself thoroughly drunk on oxygen. His first trip so high, and when he should have used a mere trickle to steady his nerves and muscles, he was using it straight. No normal man would have held the fire steady, for no man could hold down the barrel of that viciously kicking little rifle.

He glanced around, and saw the barrel of the gun pointing and wavering widely. It walked up steadily as the thing kicked, and the gunner jerked it down savagely, then it walked up again——.

The pilot cursed softly to himself, cut the engine, and circled slowly toward lower levels. The fool!

CHAPTER VIII

"IT looks like they gave up, Bruce," said Donovan, as he watched the plane circling downward. Their machine steadily wound itself higher and higher, above the clouds, out and up till the stars began to shine in steady flame, and the twinkling of the atmosphere was cut off. There was scarcely any atmosphere at these altitudes.

"Yes, that plane had to go back, but that doesn't mean that friend Gardner will give up. We're up out of his reach now, but we have to come down again, remember. And he will probably be looking for us."

"How about coming down up at Happy Days? The island is well out into that lonely little lake up in Maine, and it would be some time before even gang-spies could locate us up there. The nearest town is Makeaho, and they don't even have a telephone in the town."

"Good idea. Stay way up, and they won't be able to see us. We can come down almost straight, and land on the island itself," agreed Kennedy. "The big field has a few stones, but I think this boat can land safely. At sea level the landing speed is most remarkably low."

The ship was still climbing steadily, and was nearly up to the fifty thousand feet level. Donovan was watching the instruments keenly now, and Kennedy with equal fascination. "Still going strong, Bob," he said softly.

"I turned on a little more power, cut out some resistance. The propeller seems to take a heavier pull in thinner air. The batteries haven't shown signs of weakening yet."

But finally, at an altitude of seventy thousand feet the batteries did show they could work no further.

The plane skimmed along northward now, and the speed mounted swiftly to well over three hundred and fifty miles an hour. In far less time than they had spent climbing, they were over the spot on which they had intended to land, and the machine began circling noiselessly down.

With slight bumps, it came to rest under a row of giant trees at the lower end of a slightly sloping field. Years before some frugal, hard-working New Englander had pulled most of the rocks from this field, but now the winter frosts were shoving them up again, and the surface was bumpy. The great, soft air-wheels rode them easily though, and they stopped safely. A low hum of the motor, the rustle of air, and the machine wheeled steadily about the locked left wheel, and

came into position at the proper place.

"We can move right into the cabin," said Donovan in a low voice. "I was up here in July for a while, and was called away in a hurry. The boat's in the shed, below, and there's food stored in the larders for several weeks. Remember those trick storehouses we built," he smiled faintly, stretching stiff legs on the grassy meadow-land. "Come in handy, even the bread will be fresh."

"Yes, but old hermit, you may think you can isolate yourself in this lonely backwoods place, but all the same, said telegraph at Makeaho is going to be used by the Fuel Battery Company, much as we disapprove of the fact. We've got to tell Montgomery where we are."

"I think we'd best give up this whole game till we settle with Gardner somehow, sometime," said Donovan mournfully. "I think we ought to fight back the way he fights us."

Donovan produced a key as he spoke, and unlocked the door of the cabin. An oil lamp stood on the table, its reservoir still full. A moment later the little cabin was brightly lit as the mantle glowed white.

Kennedy seemed thinking seriously. Finally he spoke again. "Bob, Montgomery's got your power of attorney, and he knows in general what our plans are. With the boat we can call down shore at Makeaho easily enough, but they know us there. That plane is conspicuous. Let's get a good second-hand Ford, and park it somewhere near the lake shore. We can call at some town where we aren't known, reaching the car by the boat. Then at least they'll have some trouble finding us, and in the meantime I think I can prepare a warm welcome."

"Can Montgomery handle the stuff, and get the things you need—the right machines?"

"He merely has to tell certain companies that already have plans to go ahead and make the machines. I have already got plants to give me estimates on the cost of making the machines, and left plans with them."

"We'll do it," nodded Donovan. "Only one thing I don't like. I have plenty of money to get that Ford all right. Too much. I'm still carrying sixty-five thousand I got and didn't have time to reinvest."

"Stick it in the flour barrel, and come to sleep," Kennedy advised with a grin.

CHAPTER IX

GARDNER was looking angrily at the sleek, black-haired Cazoni and Cazoni looked surly, and uncomfortable.

"And so first he runs away from you in a bullet-proof automobile, and then escapes in a bullet-proof airplane?" Gardner smiled, a grimace. "I've heard of bullet-proof automobiles, and bullet-proof glass, but no bullet-proof glass I ever heard of failed to show the cracks! And I never heard of a bullet-proof airplane. You know as well as I that an airplane, to be proof against even the bullets of a revolver, would be so heavy with its metal plates that it couldn't lift off. And to be proof against the bullets from that little machine-rifle, it would need one inch armour plate, as you know perfectly well. No plane could fly with that. Did you use the same gun on the automobile?"

"Naw, they used an old Tommy. You can't silence a Weemar gun. Too damn many cars can make 130 now to get away, so we used a silenced Tommy."

"Well, they *might* armour a car against Tommy bullets, but you know and I know they simply shot all over the lot as usual. You said those windows didn't even crack!"

"Chief, I shot some myself, and I *know* I hit that window, but it didn't

phase it. That bird's clever, an' I'll bet he's got somethin' new.

"An' I told you Gunner was the best man we could get in Boston. That damn town never was no good, they haven't any organization there. Just a lot o' squabblin' kid gangs. But Gunner is there because he ain't feelin' happy in Chi. He's good, but the damn nut don't know nothin' about goin' up. Charlie flew him, and he said Gunner got drunk. He said he got drunk on ox-eye or somethin' like that, an' I asked him what that was and he says air. How the hell can a guy get drunk on air?

"Anyway, Charlie said he was so plastered he couldn't see straight, but when he came down he was cold sober, and didn't have any breath at all. He swore up an' down he hadn't had a drop, only Charlie says he got ahold of some of this ox-eye somewhere."

Gardner cursed softly. "Oxygen, Cazoni, oxygen. It is in air, and you can get drunker on oxygen than on a gallon of white mule. But you sober right away, and you have no breath, of course.

"So he got drunk. No wonder they didn't hit that plane. Well, trace him, Cazoni. And here's a hint. They've gotten scared, and left Boston, their business is in the hands of that lawyer they visited, and they'll have to communicate. See if you can't grease a few palms and find out where they are."

* * *

Three days later Kennedy was busily working with a peculiar batch of apparatus. There were two large tubs, one filled with a peculiar, clear viscid fluid, a second with a slightly muddied water-like liquid. Kennedy was drawing a long thin copper ribbon through first one tub and then through the second, moving it slowly and steadily, and finally draping it artistically over the limbs of a young oak nearby. The clear, clean copper came out of its bath with a slightly greenish, glassy look, and rapidly dried on the tree. The ribbons, each about one hundred feet long, when dry were laid on the grass of the meadow.

He worked all morning at this, and finally had several thousand feet of half-inch wide ribbons of copper, coated with a thin, exceedingly tough insulating layer of a special cellulose closely allied to rayon and cellophane. He stopped when his copper was exhausted, and went into the cabin, returning with a powerful pair of glasses, with which he inspected the lake. Then he went in, and presently smoke began to arise from the chimney. By the time Donovan came up in the small motor boat, and began unloading the materials he had brought, Kennedy leaned out of the door with a cheerful "Come an' get us!"

"I have got the things you wanted, Bruce," returned Donovan, "but I'll be hanged if I see what connection two enameled tubs, five thousand feet of copper ribbon, fifty pounds of absorbent cotton, a complicated nonperm alloy tube and the various other things have."

"Ah, you got the three tubes?"

"I did. Will you kindly dissolve the mystery as I dissolve this fodder?"

"Not till I'm sure of myself. Did you also get a package by express?"

"One package, express. Weight three hundred pounds, I'll have you know. You son of a gun, you said there was a 'little box for you.' How did you expect me to get that into the boat from the car?"

"That was somethin' I hadn't been able to figure out. How did you do it? I was darned interested to see if you could figure out a way," grinned Kennedy, looking up.

"Why you—— Well, anyway, I used the tow rope, and the car for power, with a handy tree as the derrick mast."

"Well, that's fine. And now, Bob, I hope we have given them enough clews."

"Enough clews—enough for what?" demanded Donovan in surprise.

"To find us, of course. Did you send that last message to Monty?"

"Yes, and now please explain."

"I promised I would. And thanks for your faith in me, Bob. That was in a code Monty can get, but no one else can, because the thing is based on a sentence that he memorized, and is not written anywhere. I told him to lift the secrecy somewhat, just give hints.

"We can't fight Gardner openly," Kennedy's face took on a cold grimness, "and so we are fighting the murdering crook in his own way. I have some more work, and you're going to help. Then you'll see what I mean. The clews I mentioned Gardner could follow back to us. I'm afraid we couldn't hide, and do any work."

"So we have to leave again?"

"No, that's just the point, Bob, we aren't leaving." Kennedy looked long and steadily at his friend. A slow smile of understanding came over Donovan's face.

"And now, perhaps, I see the connection between copper ribbons and the magnetically inactive nonperm tubes," he said at last, softly.

CHAPTER X

THE heavy, pounding beat of the the powerful engine shook the plane, even though the sound of it had been muffled and hushed to practical silence. Beside it two much smaller planes flew. It was dusk now, and darkening rapidly on the earth, far below, but here in the high strata, the sun still shone.

"You—you're sure they have no weapons?" demanded Gardner.

"Hell, no. They'd a used 'em before if they did," grunted Cazoni. Cazoni was unhappy. He was airsick. "An' they didn't get any in either. They got a lot o' junk, some stuff on their machine I guess. Lotta cotton an' some chemicals, an' a big box full of somethin' heavy, but it came from the Framingham Iron and Steel Company, and it wasn't a gun. That came yesterday morning, and nothin' came since.

"Are you sure they haven't left?"

"Their car's still there, an' the boat. They were there this morning."

Gardner smiled to himself. "Cazoni, you certainly have done a fine job. And they have helped a lot. I'll give you this paper, which Kennedy must sign. If he doesn't—why—eh—leave this other one as I suggested."

"Wanta burn the plane an' so forth or not?"

"Why—I'm afraid it wouldn't have anything to burn. You see it doesn't use fuel, and it's an all metal structure."

"O. K." Cazoni pocketed the two papers and listened miserably to the pounding and creaking of the plane, and felt miserable as it heaved in the air pockets.

The coast fell rapidly behind, and the sun set below them. Maine lay beneath them now, and under the bright light of a full moon a silvery dot, like a luminous comma with a slight defect appeared on the dark surface, sprinkled here and there with lights. A tiny clump of lights on one side of the luminous comma marked Makeaho, a spot of light on the black defect in the shining surface marked Happy Days camp. To-night, Gardner thought, it would not be so happy for him. He felt he would like this Happy Days himself, but thought a good Indian name much better. The tiny log cabin must be replaced by a real house that he could bring his friends to——

The light below winked out.

"Gone to bed I guess," said Cazoni.

But they had not gone to bed. They had gone up. Since darkness began to

fall, Kennedy and Donovan had been taking turns at a small amplifier set. A huge inverted cone of canvas reached upward, and at its bottom was a tiny thing no larger than a wrist watch. But it had heard the peculiar shriek of the air about the airplanes while they were still many miles off. Since then the two men had been very busy. They left the cabin now, and went down to the plane, changed since it landed, for now it was coated with a dull, lusterless black, a black like an egg-shell dipped in india ink.

Noiselessly the plane rose into the air, rising almost instantly as the tremendous power whirled the propellor, a new, larger propellor, and the wide wings gripped the dense, surface air. A faint hum carried the plane swiftly up at a steep angle. At a thousand feet it leveled off and darted across a narrow neck of water to the mainland's black background. It continued to climb.

"Think they saw us?" asked Kennedy quiety, braced behind a thing that resembled a long, black telescope, mounted rigidly into the plane's structure, poking its nose through a hole in the roof of the machine.

"No can tell," replied Donovan. "They did," he added a minute later. "They're diving."

THE plane pulled sharply, and the fabric creaked as Donovan threw an overload on the super-powerful motor. The great propellor bit and tugged. The machine rose steeply,

A black form came sharply down beside them, and something like a flickering red lightning snapped from its side. Kennedy swung to a second telescope-like machine that pointed downward. Suddenly it rattled viciously on its heavy frame, and a shrill whine came from it.

A terrible rending crack, a stifled scream of agony from the black shadow, and two black shadows appeared, each smaller than the first. Something tumbled from the one, and an instant later a parachute glistened in the moonlight.

"My God! They've got a gun!" gasped Gardner.

"I don't think so. No gun shoots without some light, and it ain't a gun that cuts a machine in two," said Cazoni.

"Let's go home," wailed Gardner. The plane turned upward, and started back to the south rapidly under his orders. The second small plane was flashing down at the climbing black thing, barely visible now against the forest. He lost it for a time, and when he found it again, it was above him, it crossed the moon. He himself was a shining, glistening thing now in the trim plane. His machine gunner stuttered out a few rounds of ammunition. Then something screamed through the night, a glistening sheet that moved across and swept toward their plane. Like a shimmering knife of silver light it passed resistlessly through one wing, angled forward and pelted on the heavy motor. With a roar the motor blew up, and fell from the plane. The machine twisted and fell over as the wing fell off, hanging by a few guy wires.

Two shining silken umbrellas fell free.

The black machine of death swept south in swift pursuit of the fleeing plane. Rapidly it overhauled it, and as they came nearer a machine gun chattered from the larger transport.

"The black paint's working, Bob," said Kennedy calmly. They can't see us well enough to shoot straight in this moonlight. He pulled down a lever, and aimed one of the telescope tubes toward the plane slightly ahead and above. A meter flopped over on the scale before him, and the mechanism, the whole plane, jarred under a heavy hammering. A silvery sleet flew out, and caught the larger plane just ahead of the tail, and ran its length, finally tearing out the motor. The fuel

tanks burst into flame, and with a peculiar puff the plane flew into a thousand blazing parts.

"That's the end, I think," said Kennedy. Then he began to tremble, and his face went white. "God forgive me, there were men on that plane," he muttered.

CHAPTER XI

M. C. GARDNER DEAD IN AIR CRASH
FINANCIAL HEAD KILLED WITH COMPANIONS AS PLANE MYSTERIOUSLY EXPLODES

MAKEAHO, Me. Late last night the people of this town were startled by the appearance of a battered, scratched man in an aviation suit, who told the story of Mr. Chas. Gardner's death. Gardner, in a five passenger gasoline powered plane was flying north on business, when for some undiscovered reason his large plane exploded in mid-air, dropping burning parts at the two smaller, speedier planes accompanying him. The man who brought the news was James K. Terrence, pilot of one of the smaller planes, which was destroyed by the explosion of the greater. Terrence escaped by parachute. Several others also escaped from the smaller planes, but none were able to live through the explosion of the "flying office," as Gardner entitled his large plane.

Kennedy looked up at Donovan, and rested back in his comfortable chair. They were in Boston now, for they felt the danger was gone. "Convenient account, wasn't it?"

"Very," agreed Donovan. "What are we going to do," rush the fuel battery plant now?"

Kennedy looked very thoughtful, as he answered, slowly: "No, Bob, I don't think so.

"Do you realize what would happen if we did? If a substantial rumor even, got out, American Power, all the big oils, the big motor stocks too, would be pressed down to nothing. How many millions of people would be ruined by that? Would it be worth it to the world?"

Donovan looked at his friend steadily for some moments. "But—how can you help it. Unless you suppress the invention."

"I own the patents outright. Can't I lease the household power-battery rights to the American Power Company, let them scrap their plant gradually as they build and sell these batteries? Their investments in power-generating equipment will immediately be written off as worthless—but even the big traders will see that the power battery rights they have are fully as valuable. The stock will fluctuate madly—and gradually reach a steady valuation.

"The oil companies can buy the rights to manufacture smaller batteries, for automobiles, airplanes, trains perhaps. It will have to be worked out, but, Donovan, think of the misery it would inflict on the world to sell those things through a brand new company. Would it be fair?"

"It would not. I agree absolutely."

"Now there's just one more question I want to ask. What was the thing you cut up those planes with? I thought you were making a sort of machine gun."

Kennedy chuckled. "It was, Bob, it was. It was simply a long solenoid that threw little steel bullets, but it didn't use powder, it used electric power. Remember there was practically no mechanical apparatus about it, only electrical contacts made by the bullet itself, as it was drawn through the tube by the magnetic force. The lack of mechanism meant it could fire as fast as bullets could go through the barrel, no waiting while the thing was cocked and the used cartridge removed. When the bullet reached the muzzle it

automatically turned on the current that started the next one. The bullet was then traveling about 12,000 feet a second. The result was that the machine gun shot something like 30,000 times a minute. It acted like a huge bandsaw, each bullet being a tooth, and moving better than two miles a second.

"Any wonder it cut through the ships, motor and all?" Kennedy smiled, and rose from his chair. "And now, Bob, I think we'd better see Montgomery, and tell the news. "He smiled drily. "I'll do my talking to the engineers of the companies. Financial geniuses seem to be disbelieving folk."

We were acting in true self-defense. It was they or we. But it is a sad load to carry—the loss of a human life.

THE END

What Do You Know?

READERS of AMAZING STORIES have frequently commented upon the fact that there is more actual knowledge to be gained through reading its pages than from many a text-book. Moreover, most of the stories are written in a popular vein, making it possible for anyone to grasp important facts.

The questions which we give below are all answered on the pages as listed at the end of the questions. Please see if you can answer the questions without looking for the answer, and see how well you check up on your general knowledge of science.

1. What would happen to an atom if its protons and electrons were separated one from another? (See page 638-639.)
2. Describe the stratosphere and the temperature at different heights above the earth's surface. (See page 641.)
3. To what height above the surface of the earth is an almost temperate heat supposed by some to exist? (See page 641.)
4. Where is the *medulla oblongata* situated and how is it connected? (See page 641.)
5. What is the relation of beat-notes to heterodyning? (See page 650.)
6. Describe the structure of the atom. (See page 662.)
7. What is the quantum theory? (See page 662.)
8. What emphasizes the simplicity of the electric motor, as compared to the gas-engine or steam engine? (See page 676.)
9. What difference is there in the lubrication of a gas engine and of an electric motor? (See page 679.)
10. How do the power reactions of a gas engine and of an electric motor compare? (See page 684.)
11. What is amber and how did it originate? (See page 704.)
12. How are insects embedded in it accounted for? (See page 704.)
13. Where is amber found and to what geologic period does it belong? (See page 706.)
14. How is amber related to modern electricity? (See page 707.)
15. How is amber classified? (See page 707.)
16. Are any modern insects encased in it? (See page 707.)
17. How would weight figure in outer space? (See page 716.)
18. What element would be in full sway in a body in outer space? (See page 716.)
19. What is the distance expressed approximately as two light days? (See page 727.)
20. What are alpha, beta and gamma rays? (See page 744.)
21. How is the X-ray produced? (See page 745.)

Retribution

By ROBERT BALDWIN

GREGORY BOOTH stood thinking, his sharp, well-defined features outlined faintly against the myriad lamps of interplanetary space. The stars seemed much smaller than when viewed from earth, but their light was more intense by far, for though the terrestrial atmosphere was not there to diffuse the light, neither was it there to intercept it. Consequently the number of visible stars was more than doubled. Even the planet, Neptune, was noticeable as a small pin point of light. The multiple light left the heavens a jet black, even with the sun shining blindly off to the right, its gleaming corona stretching millions of miles into space.

But, though it was the first time man had ever seen it, Booth was not noting the scene before him, as he stood in the little metal cubby that was the heart of the experimental moonship, "Terra;" instead his thoughts were on his fellow traveler, Cody Pfanstiehl. Ever since his high school days he had known Cody, and always Cody had gotten the credit for what Gregory had done, and always, because of his retiring nature, Gregory had let the other have the honors, planning to do something greater next time and reap the rewards himself.

Always, that is, until once when Pfanstiehl had taken steps for the gains from another of Booth's inventions, the real inventor had told the truth, had claimed the honors. But, because of the imposter's power of oratory and quick wit, the judgment had gone against Gregory.

And so, when he had been selected to pilot the first vessel to break the ties of earth, Gregory's soul had finally been filled with envy of Cody, who was now famous, as a result of his, Gregory Booth's, discoveries. And now Gregory, when choice of a companion for the trip was given him, had chosen Cody, and every one said he was showing good judgment in taking such a brilliant scientist with him; but none knew Gregory's real motive—murder. Out in space it would be easy to kill the man he hated, put the body with a space suit into the air-lock, open the outer door from within, and return to earth, saying that Cody Pfanstiehl had decided to try out a space suit, had stepped into the void and died because of a defect in the material. Every one would believe him, for he had no apparent motive for killing his companion; no one knew from whence all Pfanstiehl's fame had come.

An electric gong rang. It was a signal that ten seconds later a charge of rockets must be fired, if the "Terra" were to adhere to the delicately mapped route determined upon by the expert astronauts who had planned the voyage. Gregory turned to the instrument board at the head of the room. Ten seconds passed; again the electric gong rang, and simultaneously the pilot's long, tapering fingers ran swiftly over the keyboard before him.

A series of stunning explosions shook the ship; for a moment weight returned, almost to the power of gravity on earth. But the drumming stopped, the discharge was over, and once again the ship coasted on and on, never to decrease in speed except as outside agencies interfered. And once again gravity was hardly felt, for the "Terra" was nearing the neutral point between earth and moon,

and terrestrial gravity was growing weak.

Gregory turned to the ladder in the center of the floor which led to the sleeping compartment below. There the proposed victim was catching some much needed rest.

The figure in the control room gave a gentle push against the floor, which push, in the diminished gravity, sent him sailing slowly across the room to the ladder. Here he stopped and saturated a handkerchief with chloroform from a bottle which he replaced in his pocket. A bullet might go astray and injure some vital part of the space-ship.

Silently the contemplated murderer crept down the ladder. Dimly he could make out a huddled form in the bunk by the wall. He tiptoed toward the bunk. The short journey seemed to take ages, decades. Finally he reached it and with a sudden lunge clapped the handkerchief down on the shape.

With a smothered exclamation of surprise and dismay, he straightened up, as a cold voice spoke from a shadowed recess: "Well, Booth, you failed; yes, you fa——, don't move! I have you covered. You came down here to kill me, didn't you? Me, Cody Phanstiehl! Were you crazy to think that a man of my intelligence would not guess why you chose him as a companion? You have no reason to love me, and I reasoned you would probably try to kill me once I was in your power. But I came, anyway. Why? I came for the glory of being the *only* man to conquer space. And instead of my body, you chloroformed a heap of pillows! But *I* shall make no such mistake. Once I——"

The ship lurched, then steadied, and Gregory found himself staring at a body which had lurched out of a shadowed recess from which Pfanstiehl's voice had come. A perfect hole was drilled through the imposter scientist's head, a hole which smoked and simmered as if made by some body traveling at an immense speed, a speed great enough to cook the flesh in the instant in which the object was passing. And as Gregory looked he heard a hissing sound and noticed that the air was thinner. Suddenly he realized what had happened: A meteorite, perhaps no larger than a marble, had plowed through the ship, passing with stunning force through the double steel walls and killing Pfanstiehl in its mad flight.

For a moment Booth was relieved; his enemy had been killed and his own life seemingly saved by fate. But then his dazed brain saw that in a few moments the "Terra" would be an airless, lifeless hulk, unless he could find and stop the twin holes which were made by the bit of cosmic dust and through which the precious atmosphere was rushing, surging outward to the ether of space. Already the infinite cold of the void was penetrating the ship, as Gregory frantically searched for the holes. He was gasping for breath, when he made a dash for a rack on which the space-suits were hung.

Fumbling, he set a helmet on his head and turned on the oxygen valve. But as he reached for the rest of the suit the last of the air left the ship, and Gregory's body fell lifeless to the deck.

And so the moon-ship, "Terra," plunged on through space, doomed to wander for all time through the cosmos till it met some superior body and was destroyed.

Man's first attempt at the Conquest of Space had failed.

THE END

The Beetle in the Amber

By JOE W. SKIDMORE

Amber is a fossil resin. It is a pity that it cannot be produced from vegetation of the present era. It used to flow down the trunks of trees and became hard and beautiful, sometimes clouded and sometimes transparent. It used to enclose insects of a remote geological period—a beautiful sarcophagus for the body of the creature. The story is based on this phenomenon presented by amber.

Illustrated by MOREY

Prologue

THIS epos is dedicated to Joane, my lovely and talented wife.

The narration of "The Beetle in the Amber" is inspired because this day I have purchased a long coveted string of pure amber beads for that dear lady, who presides over my heart.

As I sit and muse—grateful to the Gods—Joane's gifted hands are making free, sure brush strokes on a wondrous painting. Against her fair, young throat the globules of mysterious amber dance and gleam in harmony with her skillful movements. Joane's painting, to-day, is a towering group of California Eucalypti, and the usual, deft studio touches are being added.

Strange, but those trees of the painting are located in the Brea Pits of Los Angeles, where many bones and fossils prove that prehistoric man battled bravely against incredible, nightmare monsters.

Perhaps those very amber spheres saw many human tragedies of our heroic ancestors?

The warm amber seems alive as it caressingly embraces that beautiful throat—lucky amber!—I—I——

The eucalyptus trees suddenly seem to change; I vision a vast, steaming forest. A strange, grotesque human flounders into a shallow, thermal stream to eagerly clutch sluggish fish. A mighty, horrible beast, tall as the trees, reaches out its long, scaly neck! Its ugly head, armed with great, cruel teeth in the vicious, slavering mouth, reaches hungrily to seize the human!

I try to scream a warning! My voice does not sound! I——

"Wake up, Joe!" from Joane. "You must be dreaming!"

J. W. S.

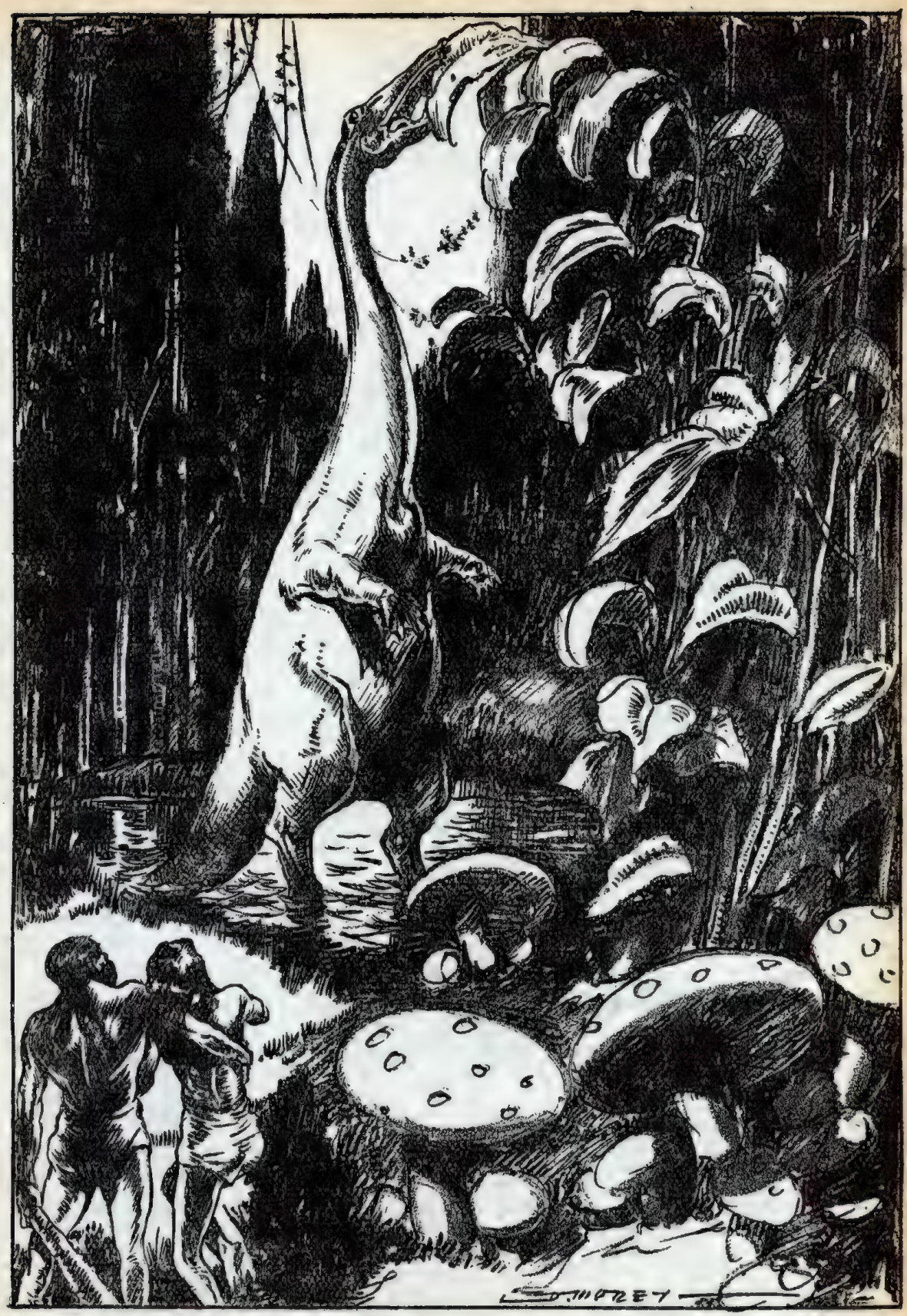
OLIVER KENT, famous scientist, occultist and philosopher, ran his long fingers through his silvery hair and gazed intently toward his visitors.

Donald Cromwell and his beautiful wife, Joane, both life-long friends of the kindly and erudite scientist, were strangely ill at ease.

"I know, Kent, old man. You may think we're crazy, but this beetle has some strange, uncanny influence over Joane and me."

With that, Cromwell handed Kent a translucent, gleaming globe of amber. As the old scientist fingered the amber ball, it fairly blazed out golden flames. reflected from the fire on Kent's generous hearth.

In the center of the globe of ancient



"Why, Joane," gasped Donald, "we're prehistoric people. From the look of that Brontosaurus, that is a herbivore and harmless to man, we are in the Pleistocene Period."

resin was a weird-looking bug—or beetle. The beetle resembled an Egyptian scarabaeus in some ways, except that it was much larger and its head was as large as its middle section. The fighting head of the beetle ended in cruel, strong pincers.

"Well, well," mused Kent, "what a perfect specimen. That fellow probably was alive a million years ago. You know, my friends, when the world was young, thousands of bugs, flies, and beetles were imprisoned in the viscid resin of pine trees. Then perhaps the lumps of resin washed down into alluvial soils and became amber. So your little beetle found a most beautiful tomb. Why should this beetle cause any trouble for you two?"

For the first time Joane spoke, her beautiful face lighting with its fine, blue, mystical eyes.

"Oh, Mr. Kent, I'm sure it's all my fault. Don and I have always been so happy. You know we've everything, health, money and each other, but we've been strangely unhappy since I found the bug."

"How and where did you find it?" asked Kent, now deeply interested.

"One day I was shopping and stopped to look into the window of an old pawn shop. Among the miscellaneous articles was this amber bead. It seemed to fascinate me—to waken some long forgotten fear. I dreamed of it time after time and went on incredibly horrible adventures in my dreams. In these dreams I saw the bug come to life. It seemed to grow to a vast size, and pursued me. Only last night I dreamed a most terrible thing. It seemed that Don and I were prehistoric people—fighting to exist in a bizarre world of vertebrated, nightmare monsters. I have become ill and irritable. Some days ago I could not stand it any longer. Some powerful influence took me to the pawn shop. I purchased the amber bead, although Don had asked me not to do so. Don found me late that night gazing into the amber ball. I was under some unearthly influence. I quarreled with Don. I was out of my mind. We decided to come to you for help. Don and I feel that this will affect our whole lives, unless I can throw its influence off. Can you help us?"

"I'm postive I can," smiled Kent. "I want to know more about your dreams, which in your case seem to be the memories of your super-conscious mind. First let me tell you a little about amber. Perhaps you know it is a yellowish resin, resembling copal, found as a fossil in alluvial soils, with beds of lignite. It is found mostly on or near seashores.

"The ancients discovered that if rubbed violently, amber became strongly electric. Because of this, many strange traditions and powers have been accredited to this substance. Pine resin is from pines that no doubt grew in the Eocene period, as lignites are of the coal periods. Amber contains much volatile matter. It is used to make the finest varnish. For countless generations amber has been worked up into beads and ornaments, because of its beauty and power of reflecting any light. Some——"

"My dear Kent," interrupted Cromwell, "what has all this about amber to do with Joane's and my trouble?"

"BECAUSE, dear friends, I am going to try a most interesting experiment, and I'm giving you the information about amber to spur your super-conscious minds—to prepare you for the test."

"The test?" Joane looked at Donald in wonder.

"Amber, my good friends," continued Kent slowly, "is a most interesting and historical substance. We find mention

of it in the Odyssey of Homer, where in the list of jewels offered by Phoenician traders to the Queen of Syra occurs 'the gold necklace hung with bits of amber.'"

"Thales of Miletus, 600 B. C., found that amber when rubbed attracted light bodies; that ancient and simple observation is the foundation of the modern science of electricity.

"The ancient Greeks believed that their mythological Heliadae, on seeing their brother, Phaethon, hurled by the lightning of Jove into the Eridanus, were transformed by the pitying gods into poplar trees, and the tears they shed were dropped as amber on the shores of the river.

"Don't smile, Donald and Joane. The history of amber is very important to you two. Amber has brought you unhappiness, and that mysterious substance must restore your peace of mind when I reincarnate you two."

"Reincarnate us," gasped Joane and Donald in unison. "How?"

"Pliny told us a lot about amber and regarded it as priceless, stating, 'the price of a small figure in it, however diminutive, exceeds that of a living, healthy slave.' Pliny tells us, too, that a collar of amber beads was a singular preservative against poison, and a potent counter-charm against witchcraft and sorceries.

"Nero, of ancient Rome, sent a great expedition along the Baltic coasts to search for this rare and precious substance. It is very strange that the insects sometimes found in amber are of extinct species. This substantiates the theory that amber is very old. Its composition, according to Schrotter is: Carbon, 78.94; Hydrogen, 10.53; Oxygen, 10.53.

"Mineralogically, it belongs to Dana's class of oxygenated hydrocarbons.

"That's about enough, for I see by looking into your minds through the mirrors of your eyes, that what I've told you arouses no unsual interest in your memories. So, my friends, it is quite clear that your unhappy experiences with amber occurred in days of prehistoric times."

"I can't see it," stated Donald, shaking his head.

"Everyone," explained Kent, "has memories—dormant, perhaps—that are as old as time. A memory thought is recorded on the brain by a slight convolution, fold or crease, such as is recorded on a wax phonograph cylinder. A horrible experience makes a deeper convolution, thus lasting longer and stronger. So it is that fathers and mothers hand down to children folds of their brains that are purely inherited.

"Thus weird, strange dreams are accounted for—dreams in which we vision things that we've never read about or could not possibly realize, unless through experiences prior to this existence."

"You mean," demanded the astounded Cromwell, "that some ancient ancestor of Joane's had a dreadful experience eons ago and that Joane has inherited this memory?"

"Perhaps, my children, it was that way—or it may be that Joane actually suffered her amber adventure in some previous existence in her own beautiful person."

"A previous existence?" from Joane, now on her feet.

"Yes, Joane. All of us have lived in previous existences." The aged Mystic's eyes seemed to be projected into the vast abyss of space as he uttered the words.

"You, Joane," stated Kent, "are psychic. You have been venturing with unlearned feet into the mysterious past. Really, your trouble is quite primary to a fourth dimensional mind. Be seated. I will explain and solve your problem."

JOANE and Donald remained silent. They well knew the eccentricities of Kent. They realized the master-mind was perhaps concerned with some involved calculus that concerned the universe.

Directly Kent raised his soul-searching glance to his friends' faces. For moments he gazed steadily—intently. They knew the Mystic was reading their very hearts and souls.

Their minds seemed to slip into oblivion. After what seemed eons, they heard the booming voice of the scientist, coming from absolute darkness. It was eerie—unreal—terrifying!

"Donald Cromwell—my friend—how much do you love Joane?"

"With all my soul!" burst out Cromwell. "She is all to me."

"Well spoken, my lad. Will you risk all to regain her happiness, to destroy this disturbing influence?"

"I will," stated Cromwell, who, although speaking with his very heart, had the feeling that it was not his own voice uttering the words.

"And you, Joane, will you, too, risk all for your happiness?"

Without the slightest hesitation the clear voice of Joane rang out.

"I will risk all—gladly."

"Even better spoken."

To Joane and Donald it seemed that they had been thousands of light-years away and that a mighty hand had suddenly snatched them back to Earth and normality. For a moment the two gazed at each other bewildered, and then at Kent, who sat waiting, a partial smile on his lean, intelligent face.

"My friends, to regain your happiness you must undertake great perils and dangers. You two will have to go back through the archives of memory."

"Why, reincarnation is merely a gruesome memory from the ignorant past!" cried Cromwell, springing to his feet. "No one believes in such nonsense!"

"Sit down!" from Kent, sharply. "You are wrong. The great thinkers of to-day, as well as many students of philosophy, science and religion, all agree that reincarnation is possible."

"Be quiet, Donald. Mr. Kent is going to help us." With that, Joane laid a restraining hand on her husband's arm.

Kent continued as though he had not been interrupted.

"I have analyzed your trouble. With the help of hypnosis I have looked into your souls and mine. Your past—not only in this life, but in your different incarnations—is an open book to me. You two must re-live your past danger, in which amber played such a vital part."

"Donald, I believe what he says! I seem to feel that he is right. Oh, Kent! How can we take this test?"

Cromwell looked at his wife in amazement. Then his eyes softened, as his shoulders straightened up. "Kent, I am sorry for doubting you. I'm ready for anything."

KENT went to a little sideboard and returned with a bottle and two glasses.

"Joane, you and Donald are going to embark upon the strangest adventure ever taken by man or woman. It is a very subtle experiment. You two are taking a risk."

"But how will you reincarnate us?" faltered Cromwell.

"I will not attempt," smiled Kent, "to explain the process to your primary minds, but I will tell you a few fundamental facts.

"The great Hindu Philosopher, Sri Jogesh Misrow, tells us that the fourth dimension is one of those subtle realities of nature, which is revealed to us as

we develop the necessary new mental organs and faculties of intuition.

"Now, what is the fourth dimension? It is one of the realms of this universe which we contact by our intuitional faculties. Just as this planet upon which we live is a real thing, so also is the fourth dimension a real thing. Our world belongs to the third dimension in its dense aspects. Its more subtle aspect touches and meets the fourth dimension. I cannot tell you much more, nor can I exactly define to you the fourth dimension and its marvelous possibilities. It is at present partially visible to many who are attuned to its vibrations. Still fewer of us can apply this great force in a practical manner. The best definition for you to consider is the super-conscious mind, which has the power to dwell in both the physical and the astral realms of the fourth dimension.

"Keep well in mind that even to the most learned of us, Isis is still veiled, and the cosmic illusion still veils the destiny of the universe. I will say no more. You would have to study for years before your minds could grasp the fundamentals. But I am telling you that I can use the fourth-dimensional power and thus project you back through time. The process is largely a mental accomplishment, a sort of hypnosis. Your bodies will never leave your chairs, but your superconscious minds will return to a former existence. For when I project your minds into the fourth dimension, time and place will mean absolutely nothing."

The scientist paused to hand his guests each a glass of dark liquid. "Drink hearty, and here's a toast.

"To you, Joane and Donald, cultured human of to-day, who will rave back against the relentless stream of time and relive a past existence! Incredible dangers await you. Drink!"

Joane and Donald drained the last drops from the glasses and glanced up into the burning eyes of the scientist.

"Joane, dear," mumbled Donald, "I fear Kent has lost his mind."

The two adventurers felt a great stupor stealing over their brains. Donald reached out and clutched the searching fingers of Joane. Together they bravely waited as their minds went out into a vast chasm of darkness and emptiness. They felt that they were hanging over a great precipice of oblivion, desperately clutching at the icy brink with fingers that would not grasp. Then it seemed that they were falling, and that a great beast was flying toward them. The fearsome reptile reached with its scaly claws and pulled them to its body.

Why, it was Hypnos! God of Sleep —and they knew no more.

JOANE and Donald struggled painfully to a strange mental realization. Their senses reeled as they looked with staring eyes at weird surroundings.

It was a moist, steaming world of giant trees and incredible orchid-like shrubs that fairly covered the ground. Immence mushrooms and fungi were everywhere and grew with amazingly perceptible rapidity.

In the middle of a tepid, sluggish stream floundered a most astonishing monster. Fully one hundred feet towered its grotesque head, placed at the end of a snake-like, elongated neck. The terrific creature's mouth was scooping in tender branches from tree tops as its enormous body, aided by its more powerful hind legs, wallowed hog-like along the stream.

"Why, Joane," gasped Donald, "we're prehistoric people. From the looks of that Brontossaurus, that is a herbivore and harmless to man, we are in the Pleistocene period."

Donald turned to Joane, who had leaped in sheer terror into his arms. His mouth flew agape. The fact that Joane was returning his stare with wide-eyed wonder and horror added to Donald's terror.

"Oh, Donald," gasped Joane, starting back in alarm, "what has hapepned to you? You're a beast of a man. You've long hair all over your body. Why, you're naked except for the lion skin around your waist. What has happened?"

Donald examined himself in amazed wonder. He noted his long, corded arms and sinewy hands, that hung far below his knees. He possessed the body of a Hercules. Wonderingly he passed his hands over his face. It also was covered with hair and to his horror he discovered that he had a great, bulging mouth with protruding incisors, like that of a gorilla. He began to speak, and it seemed to his stunned mind that his voice was that of a gibbering ape. Then suddenly a smile broke over his ape-luike features, and gurgling, but educated words came strangely from his thick lips.

"Well, Joane, you're no prize beauty yourself. Don't you see, my dear? We are now prehistoric humans among the first of the human race. Great Scott! Maybe we're our own ancestors."

By this time Joane had made a startled appraisement of her own body and began to look hastily about for something that might serve as additional raiment.

"Never mind," laughed Cromwell. "Your brown hide is tanned till it looks like leather."

To his further amazement, Donald found that he was clutching a heavy club. His hands seemed accustomed to the feel and swing of that weapon. In spite of its great bulk and weight, he swung it lightly as a fencing sword. For a time the two excitedly discussed their situation. Then the instinct of survival that predominated in the brains of first humans asserted itself, and Joane and Donald became in truth prehistoric people.

JOANE and Donald had gone back millions of years and were now living in the Paleolithic age. The world was populated with strange creatures and fantastic, gigantic monsters. The warm valleys and swampy lowlands were filled with grotesque plants and infested with nightmare reptiles—some winged. Erosion and disintegration by wind and rain had not yet dulled or worn the towering, distant mountains; they were square cut. There were no rounded stones on the steaming ground; they were edged or cubed. Glacial periods that came a million years later had not yet ground and rolled the surface of the earth with incomprehensible pressure and friction.

In modern times woman has ceased to be a chattel and slave and has become a joint sovereign of the earth with man, but in the days that were prehistoric, woman was subservient to man. Thus it was that Cromwell took the lead, as they struggled up a wooded slope. He was a fearful creature, seven feet tall, prodigious, with an immense, bony frame. His leathery hide was scarred from many a terrific battle. Through glistening eyes, set close together under shaggy brows and deeply socketed for protection, he gazed intently, through a rift in the ever present, slowly drifting fog, across a wide valley.

Nature had fashioned Cromwell for sudden and mighty effort; great, wide, open nostrils, so that gigantic lungs could inhale quickly, and muscles and sinews that swell, strong but elastic. Joane, the woman, followed closely behind, her deep eyes darting constantly, bird-like,

from side to side. They seemed to realize that they were in a land beset by fearful creatures that regarded them as tender morsels. Faced on all sides by ghastly peril and sudden, crunching death, they peered cautiously over thick, protecting shrubs. They became conscious that they were desperately hungry and with the inherent instinct of countless generations, they began to search shrewdly for food. Through the lush and semi-tropical, brilliantly colored plants and orchids, they shuffled. The air was sickly sweet from the odor of countless blossoms, brightly tinted.

Soon they reached a slow, thermal stream, and began to seize sluggish fish and gulped them raw. With their hunger sated, they crouched by the stream to consider their plight. Again the consciousness of their modern minds came to them; they looked ruefully, each at the other.

"Joane," began Donald, his thick, protruding lips with difficulty sounding his words, "we're in a strange predicament. We're really living as prehistoric people, and we have the minds and learning of that wonderful age from which we have retrograded. It's uncanny, terrifying, but we must be of stout hearts. Some strange, inherited instinct tells us how we can outwit our many natural enemies. Then, too, we are aided by our own finer intelligences."

Joane had been listening intently, her squat, hairy broad-hipped little figure tensed as if to suddenly spring.

"Yes, Donald, but what of Kalo?"

"Like a released arrow, Donald sprang to his feet.

"Great Scot, Joane, I forgot we're being pursued by Kalo and his sun-worshippers. Why, it was only last night that we came through the pass in the mountains and barely escaped their scouts."

PAUSING, Donald almost smiled as a startling thought flashed into his mind.

"We've a slim chance, Joane. We can do the unexpected. Kalo will expect us to continue on through the swampy country to reach our own tribe. We can double back to the mountains. We'll hide. It's vague to me, Joane, how we came to be in this part of the country so far away from our own tribe, the Bodas. Why did we venture into this enemy country alone, you and I? It's very mistifying. Some important happenings of this past existence seem to stand out in my memory, but the details are vague. But let's get going, Joane, for the mountains. We'll take a short cut through this little valley."

Stretching to his full height, Donald gazed with his keen eyes, striving to pierce the drifting mists. Far to the south, as the mists parted, he saw a group of massive beasts. Those carnivora were gathered above a bubbling tar pit trying to feast on an unlucky saber-toothed tiger trapped in the deadly, viscid fluid.

Side by side the two first people began to trot with untiring gait down a gentle slope that led to the wooded valley. Joane had been thinking, and as they ran along she began to speak.

"Don't you remember, Don? We were exiled from our tribe and taken to the enemy's territory because we married without the Chief's approval."

Her words seemed to indicate that she was a bit piqued that Donald did not remember a matter that concerned the heart.

"Oh, yes," panted Cromwell, his memory revived. "The Chief desired you. Zano, the old priest, married us. The Chief was furious. We were exiled, knowing that it was certain death to be captured by the Sun-worshippers. I wonder how long this reincarnation busi-

ness will last. I wish Kent had come along with us. Don't you remember, Joane, he said that amber had something to do with this adventure. I'm afraid, Joane, that we are doomed to live the rest of our lives as prehistoric man and woman."

"Even so," returned Joane, a noble woman speaking, "we'll live this life together, and we'll live again, too, as Donald and Joane Cromwell."

"Stop talking nonsense," answered Donald. "We're Joane and Donald now."

"No we're not," insisted Joane. "We're somebody else."

Life, with its incomprehensible purposes and apparently aimless struggles, was a mighty problem to prehistoric man. What force, what instinct, what belief crept into the hearts of our first people, fighting with blind courage to exist, to survive against seemingly insurmountable odds? The same instinct that dominated our prehistoric ancestors was in the hearts of Joane and Donald, and they went onward. They would do their very best to fan the flickering torch of human life.

Suddenly from the heavy, soupy air above them came a ghastly sound as of the rattling of bones, and a hideous reptile with clacking wings swooped towards them.

"Down, Joane," yelled Donald. "It's a Pterodactyl."

Cromwell placed himself in defensive position. Violently swinging his club, he leaped protectingly in front of Joane, who had slouched to the ground. The hideous, uncanny thing that flew, half bird, half reptile, made straight for the two, its fanged mouth slavering in anticipation of a welcome meal.

As the mighty jaws of the gigantic flying brute came together with a loud metallic snap, Donald leaped to one side and swung his club with terrific force.

Crash!

It struck the reptile on the wing, close to its repulsive body, with a splintering sound. The monster was stunned for a moment. Then it uttered a *crescendo,* ear-splitting cry. Donald had broken its huge, bat-like wing. The beast was grounded, but still extremely dangerous.

THE reptile's momentum had carried it well past the two, but it turned instantly to renew the attack. Scaly front feet, attached to webbed wings, one hanging limply, were almost useless, but larger hind quarters lurched the enraged creature at Donald with uncanny speed.

Donald stood defenseless, for his heavy club had splintered from the blow. There was no escape. The ground below his feet was swampy and each time he stepped, his huge feet bogged in to the ankles.

Then Donald Cromwell did a most heroic thing.

"For God's sake run, Joane," he pleaded, his voice a prayer. "I'll hold him off till you make the trees. Run!"

Joane obeyed, and whimpering a bit scurried away like a frightened rabbit. Donald dared a glance and noted that she was well on the way towards safety. Then he bravely turned and waited with hands outstretched clawlike, like a huge gorilla going to combat, to meet the horrible lizard.

Joane, a few hundred feet from the fatal spot, crouched on the limb of a great pine tree and watched the floundering struggle between man and beast. She nearly fell from her precarious perch, as the horrible drama unfolded before her.

Cromwell, though weaponless, put up a great struggle. For a time he succeeded in evading the desperate rushes

of the Pterodactyl and each time gained a few precious feet towards safety. Making strange, sobbing sounds, Joane watched intently, and her heart froze with horror to see that Donald in a wild leap had floundered into a deeper bog. The great lizard closed in.

There was a single unearthly scream, and the revolting sound of crunching bones.

JOANE crouched in the huge pine tree in sheer horror. She seemed petrified, unable to move or speak. Her eyes were fixed on the rapacious beast, that feasted for a while at the gruesome spot where Donald had so heroically perished. After a bit the uncouth creature, its hunger for the moment sated, lurched away in the opposite direction. Grounded by its broken wing, the reptile would soon be easy prey for other creatures even more horrible and hungry.

The sound of many strange voices at the foot of the tree aroused Joane from her stupor. She glanced below, and a new terror met her gaze. It was Kalo and his terrible band of Sun worshippers. They had tracked her and Donald. She was captured!

In a few seconds active, naked warriors swarmed up the pine tree and bore the struggling Joane to the ground, where the immense Kalo stood, fairly bristling with enraged dignity. He glared at Joane, who returned his gaze unflinchingly. A vast courage had crept into her heart. She was no longer afraid to die.

"Tie her to that log," ordered Kalo, indicating to his warriors a great log of pine that lay half buried in deep, pungent moss at the foot of the towering pine tree.

Joane made no resistance; she was passive. She knew full well she was to die by some horrible means. She only hoped to have it over as soon as possible. With clumsy but eager hands she was soon securely fastened face downward to the large, smooth log. Kalo came close and thrust his hideous face that she might see his leering features plainly.

"And now, Jano, will you come to live in my cave?"

"I will not," screamed Joane. "I demand the right to die."

Kalo frowned. It was the tradition of his tribe that if a woman preferred death to the cave of the man who sought her, she could demand the right of death. Even with the vast power the mighty Chief possessed, he did not dare outrage this tradition. His keen disappointment showed in his beast-like features. He snarled out.

"You wish to die, but you shall die by the sacred beetle of Idis."

Even the primitive minds of Kalo's followers were horrified, and they gasped in audible protest, but they did not dare dispute their chieftain's leadership.

"The bite from the sacred beetle of Idis will cause you to die in suffering. For many days you will die, and then you will be taken up into the Sun, where the Sun devils will torment you forever."

Joane groaned, but the greatness of her heartbreak overwhelmed the fear of death, however horrible.

"Bring the sacred beetle. Let it bite," she demanded.

Snarling his rage, Kalo beckoned to an aged priest, who stod holding an earthen pot tightly closed and lashed with many strips of thongs. The priest was so old that his features and figure resembled those of a mummy. He was chattering with decrepitude, but his keen, evil black eyes glowed with the cruel fire of fanaticism.

Eagerly and with trembling hands,

he approached the naked girl bound to the log.

"Loose the beetle," growled Kalo.

WITH infinite care the old priest unwound the thongs that bound the earthen vessel and loosed the lid, tapping the earthen pot cautiously. A large beetle crawled slowly and lazily from the jar, and reposed itself facing the girl, only a foot from her face. By some uncanny, devilish instinct, the vicious-looking beetle seemed to know the bound girl was to be its victim.

Joane shuddered in horror and strove mightily to tear loose her bonds, but they held stoutly.

A soft, humming, insidious sound began to emanate from the awful beetle, as it slowly advanced towards Joane's face. Knowing that death was near, she waited in desperate suspense. Her mind and heart became suddenly calm. She would soon be with Donald.

When the beetle had thrust its beady eyes and crab-like pincers within a few inches of Joane's face, it suddenly paused and stretched its wings. Even under the stress of her predicament and faced with fearful death by the sacred beetle of Idis, Joane noted that under the beetle's wings was a most peculiar marking that resembled a death's head.

"The death's head symbol," she gasped. "The sign of the Sacred Beetle of Idis!"

The beetle folded its wings tightly to its body and crouched closer to the log, its hideous legs trembling like bent wires. Joane knew the beetle was about to spring and fasten itself to her pulsing throat. She closed her eyes, ready to meet her fate bravely.

Plop!

Joane felt the spattering of a warm, sticky fluid against her face. She opened her eyes to gaze incredulously at the amazing thing that had happened. A great globule of resin from the pine tree above had by some miracle dislodged itself and dropped squarely on the great beetle just as it was about to spring. The sticky, glue-like substance instantly covered and smothered the struggling beetle, whose useless movements only rolled the viscid fluid in a ball-like shape around it. The terrible bug was securely entombed!

Joane strained at her bonds that she might look towards Kalo, who had dropped his weapons and was standing in trembling fear. His warriors had deserted him. Kalo, stretching his mighty arms above his powerful torso, gazed towards the Sun, that gleamed dully through the mists.

"Oh, Sun-God," he moaned in terror, "you are angry with me. You have killed the sacred beetle of Idis."

The last thing that Joane remembered was hearing the crashing of shrubs as Kalo, the Chief of the Sun worshippers, dashed madly away from the tree.

ONCE more Joane and Donald Cromwell returned slowly and painfully to consciousness. Kent, the old philosopher, waved his hands before their eyes and stepped back. There was a knowing smile on his kindly face.

With a cry Joane threw herself into Donald's arms.

"Oh Donald, you're safe; but I saw you die!" Her voice rose almost to a shriek, while Donald, not so quick in regaining normalcy, was still shaking his head and gazing stupidily at Kent.

"Donald, you died for me. Why, we did live as prehistoric people, and I saw the bug—the beetle in the amber."

Cromwell, now fully recovered, returned the caresses of his excited wife.

"Yes, Joane. I remember that saurian I battled with."

"Oh, Mr. Kent, I'm so happy. I know that Donald and I will never have

any difficulty again. Tell me, did we really live and have these adventures?"

"Now, my dear children," soothed Kent mysteriously, "you must be satisfied with what has happened to you—or to your minds—just as you wish to think. Profit by your experience. Let it clear your mind of this obsession about the beetle in the amber."

"Wait," interrupted Joane, "let me tell you what happened."

The two men did not attempt to stop her, and with inspired fervency she told of the dramatic adventure—and of the sacred beetle of Idis.

"I told you, my friends," stated Kent calmly, "something about the power of the mind and reincarnation."

"But Kent," protested Cromwell, "did we have that adventure in the body and flesh, or was it just some mental trick?"

"Well," sighed Kent, "it's useless to explain dimensional problems to you two, so let me put it to you in this practical way."

Joane and Donald bent forward, their hands clasped in a way to indicate that no future misunderstandings could exist between them. Kent waited a bit and continued.

"You both experienced the same adventure, did you not?"

"Yes," came in unison.

"I am going to leave it to you two," went on Kent, "as to whether you were really incarnated or not; but I'm going to give you just one final proof."

With that he opened his hand and there gleamed, reflecting the dancing fire on the hearth, the amber bead. Quite innocently in the center of that bead reposed the harmless looking beetle.

"It's just like the beetle that was going to bite me," cried Joane.

"Let's just see if it was—was perhaps the same beetle."

With that Kent took from his desk a little saw and some sharp tools, and with the aid of a strong pair of pliers began to cut carefully through the center of the amber globe.

WATCHING closely, Joane and Donald were intensely interested. What astonishing, new disclosure was the resourceful Kent going to make?

Directly Kent's skillful fingers laid the two amber halves on his desk, and in the palm of his hand reposed the ancient beetle, now petrified.

"Fortunately," said Kent dramatically, "a little of the original resin flowed in between the beetle's wings and its body. "There!" he exclaimed triumphantly, "I have loosened one of its wings. Now tell me, Joane, what do you see underneath the wing of that beetle?"

Joane bent forward, and Donald was compelled to support her firmly with his strong arms. For a while Joane's mouth moved, but words did not come. An old terror flashed in her eyes, and for a moment she seemed to project her mind far back into the memories of time.

Then her voice found itself as she drew proudly and happily erect with an arm around Cromwell.

"The wing of the beetle has the death's head sign under it; the sign of the Sacred Beetle of Idis."

THE END

When the Universe Shrank

By J. LEWIS BURTT

This is the final installment of this story. It holds the reader's attention to the end and in places is quite exciting. It is distinctively an interplanetary tale and the attention is held in suspense while the great opposing fleets meet in line of battle out in open space. The hero of the story is very interestingly described.

Illustrated by MOREY

PART II

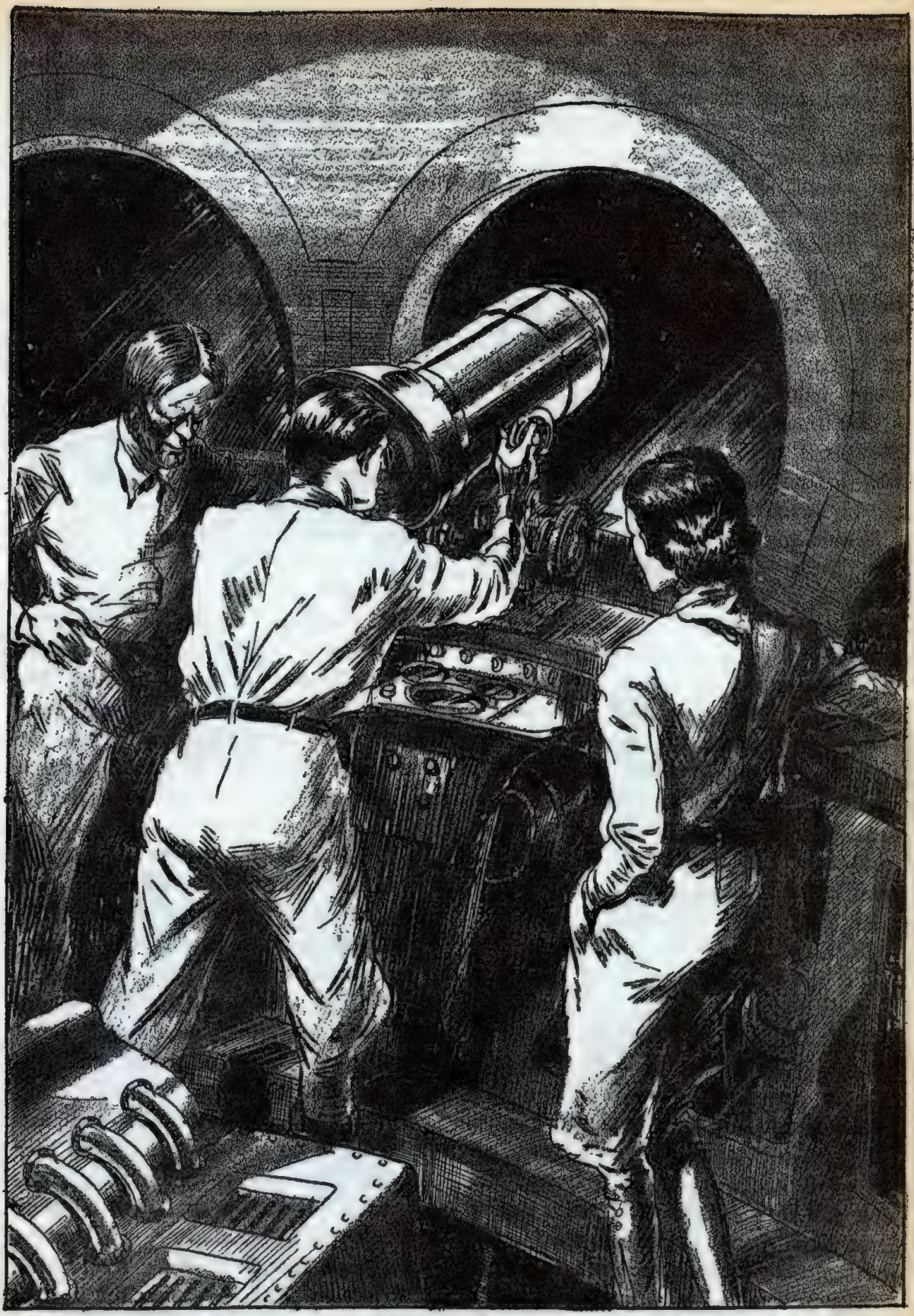
What Went Before

People of the earth observed or thought they observed an amazing change; all animals, including mankind, seemed to be increasing in size. The population of the earth had nearly reached saturation point, and the increase in size made the condition far worse than ever. The solar system had for long been united. A visitor from the Jovian satellite, Io, demands that warning shall go to all. Neil Cameron and Diane da Silva, both scientists, hold that there is no increase of size and that the world is shrinking. Many seismic disturbances were to be expected. Water would probably begin to leave the earth and would have to be replaced by a supply from some other planet. An enormous sum of money is needed for the project and Diane's mother offers all that is needed, as she is incalculably rich. Cameron shows Diane a beautiful rocket-powered space-ship—he names it the "Lady Diane," and they start off into space. A description of their novel appliances is given by Cameron, who tells Diane about the operation of the ship, and a wonderful projector that can throw a projectile fifty miles. Far out in space they encounter an enemy ship. Both Cameron and Diane are captured and taken into the enemy ship. They are sent back with a guardian to the "Lady Diane" and manage to escape taking the guardian with them. The enemy is from the orbit of the Sirian system. They communicate with thought waves. The Sirians were in search of new worlds to live on. The guardian turns out to be a very decent fellow. The "Lady Diane" is tethered to the Sirian ship, but Cameron, at the risk of being left out in space, detaches his ship secretly and they start away with the Sirian guardian.

CAUTIOUSLY he let himself out of the space-lock, leaving the great valve open behind him. With infinite care he began to haul in on the cable, pulling very gently so as not to break the coupling apart. Slowly the "Lady Diane" drew nearer to her captor. Taking care not to let the movement become at all rapid, he hauled in the slack of the cable until but a dozen feet separated the two vessels. Then, with a long, thin, flexible rod, he reached out and touched the big sphere.

Carefully he checked his vessel with this rod, as a boatman fends off a boat from a wharf. Infinite caution was required, as the ship only weighed an infinitesimal fraction of an ounce, the gravitational pull between the two vessels being almost negligible.

Just as the ships were about to touch, he jerked loose the coupling and, pushing smoothly and steadily, yet with every ounce of power he could command, he forced the "Lady Diane" away from the sphere.



Rapidly Neil adjusted the instrument to his own sight and took a long look. Then he called Diane over for a look also.

Without the slightest jar, the feather-weight ship (on earth it would have weighed some six-thousand tons; here inertia alone had to be overcome) bounded away from her captor. In that few seconds she had been given a speed of nearly fifty miles an hour away from the other ship.

The sudden movement was too much for Neil. His hold slipped. His long pole went drifting away from him, and for an instant he felt a deathly fear as he floated helplessly off into space.

The moment of panic passed as he remembered his life-line, but—the vessel was drifting away at a good speed; was already invisible in the darkness of space.

Would his line stand the strain when it suddenly jerked him along at the end of it?

Suppose it snapped!

A second or so passed. Neil suddenly realized that the big sphere was drifting away from him. The life-line had held!

Of course there had been no violent jerk, his weight, like that of the ships, was negligible. The jerk due to the inertia of his body as he suddenly started after the "Lady Diane" was only a slight one, and in his momentary panic it had gone unnoticed.

With a prayer of thanksgiving he pulled himself along the cord and, in a few minutes, had reached the space-lock, had passed through it and into the ship.

Quickly he unlocked his space-suit, stepped out of it and—collapsed into his sweetheart's arms, utterly played out.

There were still about ten hours to go before the conference with the enemy was due, and they estimated that they had at least eight hours in which they could drift without their absence being noticed.

The Sirians had no way of knowing in which direction they had gone, while they had the advantage of being able to keep them in view. They felt certain that they would not be seen unless they used their rockets, but even so, they decided to keep watch in case of unexpected developments.

The great mental strain was over for the time and they soon recovered their normal cheerfulness.

They found that the young Sirian officer, Kan Atra, was really a very decent sort. It turned out that he, like themselves, saw the folly of war between worlds, but, of course, being an officer of the Sirian Space Forces, he had had to comply with orders.

Before long they began to teach him a few words of English, since the method of communication by thought transference alone proved to require considerable effort and was very tiring.

When they had drifted for about four-hundred miles, Neil decided that it would be safe to use power. During their time of drifting they had worked out their course and accelerations, and a plan for eluding detection until they were at least ten thousand miles from the Sirian. Of course there were always his detectors to be reckoned on, but they figured that these would not be very efficient, since they were exactly in line between him and the Solar System, the impulses from which would make detection of the nearer, but smaller body difficult.

They started by using their rockets intermittently, firing only for a few seconds every few minutes and at each burst altering their course so that it would be a difficult matter to spot them.

For a while they watched their ex-captors, but no sign of pursuit did they see. The Sirians were no doubt searching for them, but there was no way of being certain of this. Then, after several hours more, they saw him swing round and, with terrific blasts from his tubes, head straight away from them in the direction of his own world.

Once certain that there was going to be no pursuit, they accelerated steadily at

their cruising maximum, which they had found to be not more than forty-five units. Observation showed them to be some fourteen-hundred million miles from home, which meant that it would take them some ten days to get back, accelerating till they reached the half-way point and then decelerating till they entered the Solar System at a speed slow enough to navigate among the many worlds and meteorites there.

At the same time Neil began again to make signals, this time using a directional beam which was almost entirely safe against detection from astern. He stuck to the same type of message, only saying that they had escaped and warning the worlds that they must prepare for a certain attack.

During this journey home they became very friendly with their prisoner, who had accepted the inevitable very philosophically. After a few days, when he had learned sufficient English, they took him into their confidence with regard to their idea of shifting the oceans. At first he was inclined to be incredulous, but soon his attitude changed, and one day at dinner he suddenly put down his knife and fork with the exclamation,

"I've got it!"

"Got what?" came the simultaneous query.

"The solution of that ocean problem."

They stared at him for a moment. Then Neil jumped up, caught Diane round the waist and began to execute a war-dance with her.

"I believe he has too!" was his jubilant comment.

But Kan Atra would not commit himself any further just then.

"Perhaps I spoke too soon," he said, "I just had a flash of inspiration then. Please don't ask me any more about it until I've worked it out. It may prove a disappointment after all."

"Oh! but it mustn't," encouraged Diane, "it means the salvation of both our systems—and maybe others as well," she added thoughtfully.

On the afternoon of the ninth day—they had been decelerating for over four days and were within fifty million miles of home—Kan Atra, who was taking a turn at look-out, called Neil over to the telescopes.

"Look!" he said, "can you see anything within a degree or so of that setting?"

Rapidly Neil adjusted the instrument to his own sight and took a long look. Then he called Diane over for a look also.

There was no mistake about it. There, heading toward them, was a fleet of cylindrical space-ships, ships of their own system. Within a very short time they would be rushing past these friends, these men who were obviously searching for them.

When Neil's first messages were picked up by an Interplanetary Patrol and relayed to the Council, there was a storm of debate. Many of the Councilors believed it to be a hoax and, after a long and stormy session, the Council voted to ignore the message, arguing that it was impossible for any space-ship to have reached the positions indicated.

The rumor spread, however, and finally reached the ears of Neil's old commander, "Daddy" Freeman, who immediately went direct to the President himself and asked an audience.

He had no difficulty in convincing the President of the genuineness of the message, and a call put through to Lady Cameron, soon confirmed the fact that Neil and Diane were somewhere out there in space.

Then the President took action such as no President had dared to do for centuries.

He showed the Solar System that, after all, he was no figurehead.

He did exactly what Neil had always

dreamed should be done. He dissolved the Interplanetary Council, dissolved it in a speech that, though short, left nothing of their condemnation unsaid. Then he called a personally selected council of his own, and, as Dictator, assumed direct command of the forces and governments of the whole system.

All worlds were placed under martial law, proclamations of warning were broadcast, and the navies of all the inner planets were ordered to prepare for war.

Then the messages, which were by this time being relayed in continuously, ceased suddenly.

What had happened? Were the two adventurers captured—killed?

The relief fleet which Commodore Freeman had all ready to rise, was held. It was useless to send out a fleet blindly into space without further information. They might search for a lifetime.

For two or three days "Daddy" Freeman roamed around in a state of uncontrollable anxiety. Then the messages began again.

Within an hour his fleet of eight fast scouts was on its way to meet the wanderers.

With a sudden movement Neil reached over and turned on all the deceleration he could get. At the same time he switched on all lights and threw into action the oxy-magnesium gun. This gun was set to fire a blast of brilliant white magnesium light every five seconds. He was taking no chances of being missed—they should see him somehow!

For a few minutes they continued to rush toward the fleet. Then from the nose of the leading vessel there flashed out a brilliant red flare, followed by two short green flashes—the signal of the Interplanetary Patrol.

They were safe at last! The fleet had seen them!

Almost like automatons Neil and Diane sat at the control panels, operating control, as though they had merely been out for a short "joy-fly". No sign did either of them give of the pent-up emotions within them.

Very soon they realized that, despite all their braking power, they must pass the rescue fleet at a speed of at least sixty miles a second. As though he were at the panel of a regular cruiser, Neil eased the deceleration to something more bearable, and flashed out four flares, two red, one green, one white. This was the regulation signal which meant, "I am approaching with extreme velocity. Scatter and give me passage."

Only just in time was the warning sent. Within half a minute the "Lady Diane" flashed between the ranks of the fleet like a streak of living fire.

The only sign of anxiety either showed was Diane's tight gripping of the controls as she held the little vessel, steady as a gyroscope, on her course. That and Neil's sharply indrawn breath were the only signs of the extremely narrow escape they had had, for they had missed the leading vessel by less than two miles—almost a graze at that velocity.

Even as they passed, the fleet began to wheel round in a ten-thousand mile circle to follow them.

Nine hours later the leading vessel caught up with the runaway and, within another hour, the wanderers were on board the great ship.

Greetings and reports over, the contingent set its course for earth.

They tried to keep their arrival as secret as possible, but somehow the newscasts had got wind of it, and the big landing-ground at the capital was thronged with people, while the atmosphere was thick with welcoming planes.

Neil looked at Diane with an expression of consternation, but she smiled back at him.

"Ghastly, isn't it?" she agreed, "but I guess we can endure it," then as they

neared their cradle, "oh, look! there's the President himself. Now we *are* in for it!"

The ordeal was soon over, however. The President, probably knowing from experience how it felt, cut short the ceremonials on the ground of urgency of defence. All he did was to greet the two friends and congratulate them on their escape.

Then, in a short speech of commendation for their gallantry and resourcefulness, he turned first to Diane, motioned her forward and said,

"Miss da Silva, in the name of the Solar Worlds we thank you, and as a small expression of the System's gratitude, we confer on you the title, never before given to a woman, of 'Lady Defender of the Worlds' and rank as Honorary Captain in the Interplanetary Navy."

Then, turning to Neil, "And to you, Commander Cameron, we extend equal honor, not knowing which of you two is deserving of the greater. You are therefore now 'Knight Defender of the Worlds' and have rank as Space Commodore in Our Navy, this promotion being, we feel, equal to the raising of your friend to the rank of Captain. These honors, of course," he went on, "carry the customary pensions, although I fancy that you, at least, Commodore, will not worry unduly over that."

A few congratulatory speeches from Ambassadors of the other planets followed, and then they were at last able to slip off home to Lady Cameron, whose greeting meant more to them than all their public honors.

But they were not allowed long to themselves. Scarcely had they reached home when the President summoned them to the capital again, this time with their Sirian friend, to attend the Defence Council. The Sirian, of course, would not divulge any information, but on Neil's guarantee, he was permitted his freedom and was allowed to return to Neil's laboratories, where he at once started to work on his ideas for the ocean removal.

No time was wasted. Most of Neil's suggestions for the campaign were adopted and within three days the Terrestrial fleet was ready to rise, the ships having been got ready before the arrival of the "Lady Diane."

Twelve more days were required for the arrival of the Venerian contingent, and then the great defence fleet was to sail for Mars to pick up the third section.

These twelve days were all too short. It was the only time Diane and Neil had in which to work on their big problem, and even that was broken into by official meetings, dinners, etc., which they could not avoid. They did, however, have time to go through all their former work with Kan Atra and to discuss his scheme with him.

Command of the expedition was given to Commodore — now Admiral — Freeman, the Terrestrial contingent being under the command of Commodore Neil Cameron.

Diane had told Neil that she was going as far as Mars on his flag-ship, and that her father would probably accompany the fleet in his private "patrol"—being an officer of the Atmosphere Patrol of the American Continent—and take her home from there. As a captain she was, of course, privileged to travel in naval fliers.

THE great fleet of ten-thousand huge armored fliers, with the accompanying "mosquito fleet" of fast scouts, left earth at dawn of the last day of May, 2946, rising and moving in absolutely perfect formation. The roar of their rocket-tubes was heard for over a hundred miles, and the thousands who had assembled near the great space-drome,

were treated to a pyrotechnic display such as the world had never seen.

During the ascent and acceleration, which occupied some four hours, Neil was fully occupied with handling his fleet and was unable to think of anything else. As soon, however, as they were set on the course and speed for Mars, he phoned up to the control room of the ship—he himself had a special control room from which he could give instructions to his Flock and Squadron Commodores—and requested that the captain be asked to come down.

A few minutes later a rap came on his door and, in reply to his invitation, an orderly stepped in, announced, "Captain to see you, sir," and retired.

A second later the young Commodore looked up to see before him, in captain's uniform, none other than Diane!

With a grin he got up and came round the panel.

"So you've decided to wear the uniform of your rank, dear?" he commented, "suits you, too."

"Well," she asked after being suitably admired, "didn't you send for me on official business, sir?"

"Send for *you* on official business!" he exclaimed, "no, dear, I sent for the captain of this ship."

"We-ll——?" she queried with a mischievous inflection of her musical voice.

"What!" Neil nearly jumped through the space-port. "But you're not——"

"You bet I am. *I'm* boss of this ship young feller! Haven't you just admired my uniform?"

"But, my dear——" he went on.

"Well, aren't you glad to have me?" was her mischievous reply.

"Glad! I'll say! But, my dear, you shouldn't have done this—you shouldn't have risked such danger. I really can't let you go past Mars, dear."

In reply she threw her arms round his neck and whispered,

"Don't send me away, Mr. Fleet Commodore, dear. I'm not afraid you know, and if you're—if you don't come back, then I don't want to either."

"But, how in the galaxy did you manage it?"

"Easily. I made love to your "Daddy" Freeman and then I smiled nicely at President Egbert, and you *heard* him say he'd do anything for me."

Then for a few minutes they discussed official matters, after which Diane said, "If we've finished all the business, I want to go and inspect my ship. I know a good many captains leave all that to their lieutenants, but I think I'd like to make my first inspection myself."

"O. K., my dear, I guess we'll both have to be pretty busy from now on."

Then assuming official status, she asked,

"May I dismiss, sir?"

"Certainly, Captain."

A half humorous smile at the incongruity of this necessary formality, and she was gone.

•

NEIL turned to his control board. Everything seemed in order. All ships were keeping station.

The formation was that of a huge complex cone, the flagship leading and the fleet following in squadrons of fifty-five ships, each squadron forming its own cone as a unit of a larger cone.

Squadron formation was peculiar, but very effective. In front was the leader. Next came a ring of eight ships (A Flight) in a circle of ten miles radius and five miles behind the leader. Five miles behind this again was a ring of sixteen ships (B and C Flights) in a circle of twenty miles radius, and the same distance behind this again, a third circle of twenty-four ships (D, E and F Flights) in a thirty mile circle. Fifty miles ahead of each squadron were six scouts, making the full strength of fifty-five ships.

Flock formation followed the same plan as the squadrons, fifty-five squadrons forming the flock, the circles in this case increasing in radius by two hundred miles, with a forward interval of two-hundred and fifty miles.

The total number of ships in a full flock, together with supply ships, additional scouts, etc., was something over three thousand, so the whole fleet was divided into three flocks traveling on parallel courses, with a clear space of a thousand miles between their outermost scouts (the latter with picked crews capable of standing an acceleration of eighty units for considerable periods).

Headquarters unit, consisting of a squadron of fifteen ships of the line and a fleet of these little ten-man fast scouts, had a position central to the three flocks, which were equally spaced around it.

The remainder of the fleet consisted of out-flying scouts, forming vanguard, rearguard, and circumguard.

The whole fleet in motion was a most marvelous spectacle, covering as it did a circle in space of three-thousand miles, with a total depth of nearly a thousand miles.

The Venerian contingent of one flock was parallelling them at ten thousand miles. This, with two flocks from Mars and possibly a few ships from the Outer Planets, would make the second fleet under a Martian Commodore.

Main Headquarters groups had gone ahead and were some two million miles away.

ON the second morning out, Neil called through to the control room for Diane. When she reached his office he told her that some of the ships in the Venerian contingent were giving trouble and were not able to keep station.

"Commodore Mansik has asked me to go over and see if I can locate the trouble. I shall be gone about ten hours, and I want you to take charge of my control panels during my absence."

"Right, sir," was the formal reply. Then dropping formalities, she added, "but get back as soon as you can, won't you? I want you here on this ship with me."

He reached over to a small drawer and took out two small boxes.

"These," he explained, "are personal radio sets—an idea of my own. They are intended for private and personal communications. Freeman and I have talked over a distance of ten miles, but we have had no chance to test them out in space.

"Now's our chance for a real test. You take this set and I'll keep the other."

"Gee! I'm all thrilled," was the girl's excited comment. Efficient captain though she was, she still had a good deal of the child about her. "How d'you fix it?"

"Put the main strap round under your arms with the power box and 'mike' between your shoulders. The 'mike' will pick up the sound vibrations from your lungs through the bones. Run the fine wire up along and under your helmet strap and over your head, letting the receiver pad rest *behind* your ear.

"With the present fashions in hairdressing this instrument should be quite invisible when worn by either a man or a woman. You'll notice that your set has its pads and leads tinted to match your own coloring."

It certainly was difficult to detect it, even without the helmet, and in full uniform it was entirely concealed.

Neil gave a short explanation of its controls, and then said, "switch it on and we'll talk."

She did so and began to speak.

"For planets' sakes!" Neil nearly jumped out of his skin, "You nearly burst my eardrums!"

"So you did mine!" came back Diane's

voice as she opened the switch, "I never thought they had that power!"

"Neither did I," agreed Neil rather ruefully as he rubbed his ringing ears. "The power is adjustable though. Set them to register a faint whisper now, and then, as I get away from the ship, keep changing the adjustment to suit the distance. I'll do the same, and then we'll be able to use them efficiently at any distance."

"What's their maximum range?" asked Diane.

"Dunno," was the reply, "but if that little effort is anything to go by, I'd say about a million light-years. Seriously though, I hope they'll be effective up to about twenty-thousand miles in clear space."

"How many sets have you?" was the next question.

"Only two so far, or rather three instruments. This one of mine will record from yours or Freeman's. The other two, yours and his, will only record to mine."

"But can't I talk to Paddy Freeman?" she coaxed.

"Not just at present. He's much too far away," was the discouraging reply. "But if it will please you, I can fit them all with triple cycles like this one. Then we'll be able to talk together as well as each having a private line to each of the others."

NEIL reached the Venerian flag-ship in a little under an hour, and soon got details of the trouble. It appeared that a dozen or so of the ships were unable to keep station, but would, for no apparent reason, swing in every now and then towards other ships.

On two occasions ships had actually touched before their side rockets could drive them back to their proper positions.

With the Venerian Commodore and a couple of staff mechanical experts, Neil went on board the most erratic vessel. A quick examination showed every mechanism apparently 'starred' and the ship was keeping station perfectly.

This continued for about an hour. Then, without the slightest warning, she lurched sideways and, before the side rockets could be brought into play, was drifting swiftly towards her neighbour.

As the jerk occurred, Neil took a sweeping glance over the control and instrument boards. Apparently all meters were showing normal readings.

He grabbed a phone and called.

"All operators and observers report readings of meters at moment of jerk."

One by one the readings came through, all seemingly normal. For a few minutes he studied the tabulated figures in front of him. Then, as though muttering to himself, he called Diane on the new instrument.

As soon as she answered, he whispered, "Get the readings of all meters on all control panels of your ship. I want normal readings as they stand under these conditions of velocity and formation."

As he sent the message he reached for a pad of tabulating forms and began to fill in the top sheet as though figuring out possible readings. He knew how a little of the mysterious always impressed Venerians.

In a few moments the reports began to come through from Diane. He tore off the scribbled sheet and began to fill in another with the figures she sent.

Before long he had the sheet filled and then he began to compare the two sets of readings—rocket temperatures, 'starred'—pressures, 'starred'—battery voltages, 'starred'—artificial gravity—h-m-m-m! Something funny here, figures far too high.

Abruptly he rose, signaled to the two mechanicians to accompany him, and led the way down to the after power-room.

Then things began to move somewhat rapidly! His first order rapped out. "Put all gravity into neutral." Then, "open up the gravity boxes."

This took some twenty minutes, during which time he strode around from meter to meter, testing, examining, checking.

When at last the boxes were opened, he stepped down into the nearest and walked slowly along, examining mechanism after mechanism.

Suddenly he stopped. "Look there!" he called to the Venerian officers.

One close look was sufficient. The two Venerians just 'blew-up'. The gravity balancing relays were almost red-hot, their 'mikite' insulation burned and fused!

"What's to be done, sir?" queried a Venerian officer, "We've only two spares, and the other relays will likely be as bad as these."

"Do?" Neil snapped out, "Why just float around without any gravity for the rest of the war, I guess. Wait a minute. I want to think this out."

Going back up to the power room he sat down at a desk and began whispering to Diane,

"See how many spare C. B. relays there are in the Terrestrial Fleet, also how much No. 18 insulation and No. 483 wire."

The answer was not long in coming.

"We've only four spare G. B. relays per ship and the regulation amounts of insulation and wire—What's up?"

"Oh, all the G. B. relays in the whole Venerian fleet are defective I guess. The ones in this boat are a *mess.*"

HE looked up at the Venerian Commodore.

"I want your *fastest* scout boat at once, please, Commodore."

Mansik stared for a moment in surprise. Then he turned and gave the order.

A minute or so later Neil handed him a written form with the request, "If you think it advisable, will you have that dispatched at once please, Commodore? Don't radio it," he added. "Too much publicity!"

The message ran:

"Commander Venerian Fleet in Space, to Commandant of Supplies, Planetary Headquarters, Mars:

The Venerian Fleet is having trouble with defective gravity-balancer relays. It appears that the type fitted—G. B. K. Z.—is too small to carry the load under full formation conditions. Many of these have already broken down and it will be necessary to replace the relays of all ships with larger ones as soon as possible.

It is requested that you supply to our fleet on its arrival as many as possible of a larger relay. Type G. B. K. K.-9 or larger should be suitable.

We require up to a maximum of 20,000 relays and also 1000 units of insulation No. 48b. and 1000 units of wire No. 564.2

Please do your best for us, as our fleet will be unable to go into battle without the new equipment."

The Venerian read it over, thought for a moment, then signed and dispatched the message.

"Thank you, Commodore," he continued. "We are most grateful for your help. None of my own officers could locate the trouble, since the gravity boxes appeared to be functioning. You must be a wizard at spotting trouble," he added with a smile.

"Glad to have helped you, Commodore," was the reply," I think, if I were you, I would instruct your captains that any ship that gives trouble is to proceed with neutral gravity.

"It will be inconvenient for the crews, but it is essential that your whole fleet arrives.

"Perhaps it would be as well, also, if you increased your formation distances by ten or twenty times. That would relieve the boxes somewhat too."

Then, taking his leave, he entered his own flier and returned to his flag-ship.

The journey to Mars occupied sixteen days, during which the officers and crews of the ships were drilled in battle practise and formation, and were also given a course of lectures—by etherophone on the methods of resisting the hynoptic forces of the enemy and keeping their own mental control.

The experience of their two commanders in this matter was invaluable. There is little doubt that, had our fleets met the enemy without this mental preparation, they would have fallen under the spell and surrendered without a struggle.

The lectures were given by Neil and Diane, each one dealing with certain special phases of the problem, and at the conclusion of the course, they felt quite confident that humanity would be able to defend itself against any mental attack that could be launched.

A code of signals was devised so that flock and squadron commanders could be warned of such attacks and resist them as units.

Instructions were also given that, in battle, no orders were to be obeyed and no move made until confirmed by at least two officers. This was to prevent any unfortunate incidents arising through individual officers coming under enemy influence temporarily.

THE arrival at Mars was a sight such as few living could remember. The air seemed filled with great cigar-shaped vessels. The landing grounds, specially prepared for the great fleet, covered mile on mile of the dry, sandy wastes of the little red planet. As far as the eye could reach in every direction there lay rank on rank of shining metal ships.

Twenty-thousand there were in all, packed close together, yet still covering a full forty square miles of ground. The ten-thousand Terrestrial ships on the north occupied a whole county, while the seven-thousand Martians and three thousand Venerians filled an equal area.

Beside this, an area of at least sixty miles was packed with the thousands on thousands of little scouts. A hundred thousand of them at the least were gathered in this area, while from time to time still more groups arrived, until even this huge area was unable to accommodate them.

Around the Venerian fleet the bustle and rush was terrific. The Martians had procured more than half the required relays, and every vessel was being refitted with larger ones, or with extra numbers of the small ones taken from those ships which had the new ones installed.

Two days of preparation were followed by a similar period of rest and recreation for the overworked crews.

On the afternoon of the second rest day, shooting down the sky, came one of the fastest scouts in use. A tiny ship it was, bright blue, carrying the colours of the "Saturnian Federation of Satellites."

Straight to Admiral Freeman's headquarters it was taken. Its commander stepped out, saluted the Admiral and handed him a message.

"From Commander in Chief of the Satellite Forces of the Outer Planets, to the Admiral in Command of the Inter-Planetary Expedition.

Greetings. Following our messenger is the fleet of the Outer Planets.

We regret the delay in arrival, but have been awaiting the arrival of some of our forces from asteroids on the far side of the sun.

We are pleased, however, to be able to place at your disposal a total fleet of

about eight-thousand vessels, together with accompanying scouts.

We earnestly trust that this fleet will be of great assistance to you."

This was indeed glad news. The commanders from the inner planets had only expected a small contingent, certainly not more than half a flock, from the outer satellites. Now the Solar Fleet numbered nearly thirty-thousand ships of the line—a navy such as had never before been gathered together. Moreover, the new unit enabled the fleet to adopt its most efficient formation, that of three units equally spaced around its headquarters section.

Against such a fleet the enemy must needs be powerful.

The voyage outward from Mars did not commence at once. During a month of preparation, drills, battle-practise etc. were carried out almost continuously. This month was necessary both for the training of the combined fleets and also to allow the fast scouts to get sufficiently far ahead of the main fleet.

These scouts were sent out at regular intervals of two days, so that there was, in front of the fleet, a strong series of protective vessels, and also a definite line of communication.

The scouts accelerated up to twenty-thousand miles a second, so that when the main fleet sailed, the leaders were some two light-days ahead (say forty-thousand million miles). These were spread out over the area of a circle of nearly one-light day in diameter.

This incredibly gigantic fan of scouts was necessitated by the terrific velocity attained by the main fleets. They must be so far ahead that they could give the main body warning at least twenty days before it could come up with the foe—and, incidentally, give the foe equal warning, of course.

A surprise attack with fleets of this kind is utterly impossible, since such fleets require a tremendous time to decelerate to speeds at which they will not simply shoot right past each other and away into the void. In this case from fifteen to eighteen days must be allowed.

The scouts would, of course, etherograph back their messages from rank to rank, while themselves dashing right past the enemy's scouts, and then they would turn in a circle of uncounted millions of miles to rejoin the main fleet.

On July 20th, the main fleet moved off. It was a sight such as could be seen only by telescopic vision. The vastness of the formation was too much for the eye to take in at short range.

It took some ten hours to get formation, as the leading ships had to travel outward so far before decelerating to a stop, while the rest came up into position behind them.

For high velocity-traveling all intervals were increased by two hundred times, so that this incredibly great navy now occupied a circle of a quarter of a million miles in diameter, with a fore-and-aft depth of a hundred-thousand miles—little enough space at that for such tremendous velocities.

It is almost impossible, even in these days, to picture this colossal formation. The thirty-thousand ships of the line may perhaps be visualized, but when we try to picture this far-flung screen of scouts spread out so that no one of them is within a million miles of his nearest neighbor, then our very imagination fails us utterly and hopelessly.

THE scouts had no light job. They had to detect the enemy fleet at a range of at least five-million miles. Moreover, the enemy vessels would be dark bodies unilluminated by the rays of the sun, which at that distance was merely a fairly bright star. The only light radiating from the vessels would be the faint trails of their rockets—if they were

using motors of that type—and possibly a few rays from unguarded space lookouts.

Visual detection is impossible under such conditions, so they were forced to rely on directional vibration receivers tuned to the utmost sensitivity. (There had, of course, been no time to equip them with Neil's new detectograph). With these they should be able to detect the radiations—the corona loss—from the electrical machinery of the ships. But five-million miles is a long way even for the most delicate instruments.

A less extensive range would have been useless, since, with a relative speed of perhaps forty thousand miles a second, they would, even then, get only about four minutes of possible observation before the enemy would be passed and out of range again.

It was absolutely marvelous the way in which those scouts kept contact. Their formation, even at such terrific distance, was such that their detectors gave them almost complete coverage over their whole front. A few enemy vessels might slip past unnoticed, but long before the main body was reached some at least of their scouts must reveal their presence.

On August 10th, the first reports came from the scouts. On the eighth the first line of enemy outguards had been detected traveling directly towards the sun at a speed of about fifteen-thousand miles a second.

On the 25th, reports of contact with the main fleet began to come in, and as soon as this occurred the calculating machines were set to work to figure out the necessary course and deceleration to get the Solar navy in position to meet them.

As had been expected, the Sirian fleet had detected our scouts also and were themselves decelerating so that the two fleets would come into contact in about twenty days.

All scouts, except the immediate advanced guard, began at once their gigantic circling movement. Those whose position compelled them to pass through the enemy's lines, sprayed out behind them a fan of tiny steel balls—a million or so from each—so distributed as to occupy a space of some fifty million cubic miles.

These little pellets were few and far between it is true, but it only required one of them to strike an enemy vessel to cripple it badly. At the tremendous speed of approach these balls were as deadly as any natural meteorites.

The full effect could not be seen at the time, but when all the facts of the gigantic attack came to be known, it was estimated that some five thousand of the forty thousand enemy vessels were wrecked or disabled by them. The balls, although so scattered, were numerous enough to overtax the automatic meteor repellors and so do effective work.

As the speed decreased, the great cones began to contract until normal positions were reached, with vanguard scouts at twenty thousand miles.

THE enemy formation was a huge hemisphere with the concave side forward. Their idea apparently was to envelope our fleets completely by completing the sphere.

As the fleets made contact the forward scouts shot out projectiles filled with uranium solutions, which were timed to burst on contact, or immediately in front of the enemy ships. The released fluids, in the moment before they froze solid, spread out over the hulls of the spheres forming slightly luminescent patches which, under the influence of rays from our ships rendered the spheres easily visible. This work was so well done that practically all the enemy vessels were thus identified.

At ten-thousand miles the first premonition of a mental attack was felt. From

a group of scouts came the first warning M. A. signal, and every man in the fleet braced himself to resistance.

Within a few seconds came the voice of Admiral Freeman,

"Mental attack developing. All ranks keep stations. All orders will be confirmed and reconfirmed." Then, immediately following,

"Terrestrials will attack outward from center. Allow enemy fleet to make complete envelopment. Mars-Venus attack from left flank and Outers from right.* Fleet Commodores use own judgment as to methods and formations."

Then in a different voice came,

"General Staff Commodore Hyachi confirms order of Admiral Freeman" and the order was repeated word for word. Then again

"General Staff Adjutant Taklata reconfirms order of Admiral Freeman and Commodore Hyachi" and again the exact words were repeated.

Clumsy? Yes, but very necessary. As we have already said, the fleet had to be protected against officers under enemy influence, and the exact repetition of the words was the only safeguard. Under, or partly under, enemy domination officers would almost certainly *not repeat the* exact *words* of an enemy-suggested order. They would express the *thought* each in his own words.

Swiftly the Terrestrial Fleet swung into its new formation. Each flock covered a sector of the sphere, with squadrons facing outward. Headquarters, of course, remained in the centre, directing by etherophone and telescopic vision. The enemy, thinking they had our fleet in a trap, closed in behind them.

It must be remembered that in the almost complete darkness of outer space, visibility must be extremely poor, and that, even though the battle was formed in close order, yet it still covered thousands of miles in all directions.

Arrived in position, the Earth Fleet halted and waited for the enemy's move. Almost at once it became evident that the full force of the mental attack was to be directed against this section. With every man in the fleet using all his powers of resistance, and with the support of the outside fleets too, they had all they could do to stand against this terrible menace.

At first, as had been the case when Neil and Diane had been attacked, it took the form of suggestions of terrifying fates.

In a few moments a sense of doubt and confusion began to make itself felt. Promptly Neil turned to his Staff Commander and Signal Lieutenant.

"Watch!" he orderered as he started to write out a message. "Has either of you had that thought suggested to you?"

"No, sir!" came the instant reply.

"O. K., then. It's an order. Please confirm."

Then calling on his phones, he read the message.

"Flag-Captain da Silva is hereby relieved of her command and appointed to the General Staff with rank of Fleet Commodore. She will hand over her present command to Commander Edwards, who takes rank as captain on assuming command.

"Fleet Commodore da Silva will report immediately to this control-room to take command of the mental defences of the fleet."

As soon as Diane reported, Neil called her into his private office.

WHEN they were alone she turned to him with,

"Neil, dear, why didn't you let me keep my ship. I *did* want to fight it through."

"I know, dear," was the quiet reply, "but you are the only one who can handle

* The terms "left" and "right" could be used without confusion, since the fleet always worked from its own space-plane, which was set by the commander according to the direction of travel.

this command. *It's the most important job in the fleet.* I must keep clear for general control and you are the only other one who knows just what these fiends can do—You saved us before, you know!"

"But, Neil, you've given me equal rank with yourself." She protested, "Can you do that?"

"You bet I can, sweetheart. It's both right and necessary. Daddy Freeman will confirm it all right. Besides, you must have that rank so that your orders will supersede those of the Squadron and Flock Commodores."

"But see," he broke off, "the attack is developing. Better get at it. Good luck, dear."

Diane, with characteristic decision, immediately called two of her former staff to act as her "aides" and to confirm her orders. Then she got busy.

Idea after idea she sent out to the fleet. After a while the sense of confusion began to fade, as the men began to co-ordinate their thoughts with hers.

Neil's wisdom in making the appointment was now apparent. Every man in the fleet just worshipped their lady commodore, and responded to her as they would to no other. They knew too, that she had already met such attacks, and that knowledge gave them the added confidence that was so essential.

Time and again her voice rang over the wires and through the ether. Now it would be, "Hold on, boys, you can't be licked!" or again, "We are on the side of right, and Right is Might!"

Then again she would meet some definite order of the enemy. Once it was "Leave those controls *alone!*" as the mental order came "All controls in neutral."

For a full hour the struggle continued. Then like a ray of brightest cheer, came Admiral Freeman's voice on her private radio.

"Well done, Commodore Di! Stay with it, girl! Mars-Venus and Outers will strike within three minutes."

As though the enemy had heard the whisper the attacks redoubled. Diane could feel the suggestions almost like physical blows.

Her fleet began to break. Here and there a man or an officier would collapse and try to do the enemy's bidding. Time and time again did commanders and others have to force their own men back from some panel or other. Yes, even to shooting down their best friends did they come.

Within a minute confusion began to develop. *Could* they last out that other two? *Could* they? They MUST!

With the supreme effort of her life Diane shrieked into the phones,

"Hold on! Hold on, boys! Remember your wives, your sisters, your sweethearts! Hold on! Right is INVINCIBLE!"

It was her old appeal and again it won. Men, officers, commanders took a new grip on themselves. A few moments of appealingly intense struggle followed, and then—

"Our fleets are attacking," came Neil's voice.

A gasp of relief quivered throughout the fleet. Now the enemy must divide his attention.

LIKE the snapping of a switch the pressure ceased. The mental attack had *failed!*

With a sigh Diane sank back completely exhausted, utterly spent with the terrific strain. Without a second's hesitation Neil turned to his Staff Lieutenant. "See to her!" was his curt command, snapped out through clenched teeth.

He would have given everything to go to her just then, but—his world was at stake, his duty, his honor, and well he knew that she would never have him desert that even for her.

Quickly he turned back to his panel.

"Mental attack defeated!" he called, "Orders following this may be direct, without reconfirmation."

Never did a tired fleet go into battle with such steady determination. As soon as direct orders were again established Neil sent out,

"All squadrons, except No. 1 of 'A' Flock, will protect with full ray-screens and attack outward with rays 1, 2, and 5.

"Squadron 1A. will scatter, watch for attack by radiance balls and endeavor to devise some means of defence against them."

Then after a moment he added, "Good luck, One! Yours is the place of danger—and of honor!"

No. 1. Ray was merely an intensely brilliant ray of white light, to expose the enemy to view (Our ships had been painted a dull black before leaving Mars to counter any similar ray used by the enemy). Ray 2 was pure, concentrated heat, and Ray 5 was an ultra-violet which was to activate the luminous paint sprayed on the ships by the scouts.

In addition they had Rays 3, and 4, the former a short "gamma" ray, the latter a beam of magnetic force.

For extra armament each ship carried ten guns of twenty inch calibre, which fired projectiles containing a couple of tons of kryptonyl-nitro-pyridine (known as K. N. P.), one ounce of which was equal to more than ten pounds of the ancient, but similar, T. N. T.

These guns were only intended for special circumstances as the concussion of their firing was so hard on the crews.

The sudden blaze of sixty-thousand searchlights must have been distinctly disconcerting to the enemy, but they were evidently fighters. Their own rays flashed back within a second.

At first the battle seemed to be merely a sort of fantastic searchlight display. Then Neil ordered,

"Squadron Commanders will focus Ray 4 on any enemy ship that approaches within fifty miles. Focus *through* the hulls and try to freeze their electrical machinery."

As he finished speaking, a red light flashed on his panel. Quickly he threw a switch,

"Commander Squadron 1A., speaking, sir," came the voice, "Enemy are firing luminosity balls from some of their ships in sector 346/28. May I collect my squadron there, sir?"

"Certainly, Commodore, your squadron is entirely in your own hands. You are permanently connected without signal. Good luck."

The main battle was developing very slowly. The enemy seemed loath to use more than a few rays—although our fleets were certain that he had a much greater number. This slow development suited Neil exactly. The longer time he had the more chance there was of Squadron One finding out something about the balls of fire.

"Squadrons should concentrate their rays more," was his next instruction. "Concentrate the focussing until you break through their armor. Add Ray 3 at the focal points to help break down armor resistance."

As he gave the order, Neil felt an intense pity for these men who were fighting so gallantly. Well he knew that they were almost exhausted by that terrible mental battle. Yet not a man faltered, although it was like automata that they obeyed—spontaneity of thought and action could hardly be expected yet.

Then there came to him an understanding of the enemy's slowness. Of course, he too was played out! His unsuccessful attack must have been continued to the point of utter collapse. The enemy *could not think clearly* for a time!

As the full significance of this struck him, he turned to Diane, who, now nearly recovered, was sitting beside him.

"Now's our chance, kiddo!" he grinned. "Those beasts are still exhausted and can't think," and as a rather wan smile flashed over her face, he turned back to his phones.

"Squadron commanders give 'em everything you've got. Get 'em before they start thinking again!"

NOW things did begin to hum! With marvellous precision the many rays moved to and fro, combining and recombining. Ship after ship of the enemy's fleet flashed into white heat—drifted off her course—her crew burned alive. Thousands must have been destroyed within a few minutes.

But this was not to last. Aroused by the sudden intensity of the attack, the Sirians forced themselves back into activity. Now they let loose their great weapons —the balls of fiery radiance. Thousands on thousands of these horrors came rushing towards our fleets, directed by some force inexplicable to us. Hundreds of them struck before our ships could dodge them, and each time they struck, a ship went to its doom in a soundless crash of infinite brilliance.

How many enemy ships were destroyed we could not tell, but within an hour, over three thousand of ours had gone—and what was happening to the flanking fleets we could only guess!

In growing apprehension and alarm Neil and Diane watched the recording officers. How long could this last?

Frantically he called No. 1. "Can you get ANYTHING on them? We are being annihilated!"

"Nothing yet, sir," was the disheartening reply.

Fifteen more minutes—two thousand more ships dead!

Diane looked at her lover, saw the desperation in his face.

"Isn't it HELL!" she exclaimed. "If only we were out there on the circumference doing something, it wouldn't be so bad—but here, safe in the center——"

"Not so safe either," broke in the voice of the Staff Lieutenant. "Look at that!"

"That" was a group of fire-balls rushing towards them at terrific speed. It was their turn now—a few moments and their little squadron would be but a blaze of light!

"My God, *look!*" cried Diane suddenly. "Oh! the heroes!"

In amazement they stared, for right into the path of the fire-balls shot a full squadron of vessels—a Japanese squadson—deliberately throwing away their lives to save their leaders!

"What squadron is that?" asked Neil hoarsely.

"No. 37, 'A' Flock, sir."

"Record it. Never let that sacrifice go unhonored." Neil's voice broke on the words as the heroic squadron burst into brilliance.

For a moment headquarters stood in bareheaded silence. Then, suddenly, sounding harshly through the hush, came the voice of Commander 1A.

"We have it, sir. The balls can be stopped by Ray 3 if its wave-length is increased to .0004 micrometer. Concentration of ten or a dozen rays at this wave will explode them."

"Thank God!" was the fervent response.

Now the intensity of the fighting redoubled. The enemy, finding his weapons repulsed, endeavored to swamp our defence by sheer weight and rapidity of fire. Still our ships continued to go out in flame—still we seemed to lose two or three to their one!

With haggard face Neil muttered,

"Our last reserve!" and called again on general signal.

"All squadrons—rapid fire independently with K. N. P. guns."

By now there was no attempt as regular formation. Earthmen, Venerians, Saturnians were all in a general mêlée with the hostile spheres. Fortunately for Neil's headquarters, the general shape of the battle was a hollow sphere of which his group was the central point, so that they missed the greatest intensity of the attack.

FOR two hours more the struggle went on. Rays, projectiles, fire-balls—everything that they could hurl at each other was used. Squadron after squadron was annihilated. The whole remnant of the Solar force now numbered less than two thousand ships—*and still they died!*

The enemy was suffering, too, suffering terribly. Our K. N. P. guns were wreaking havoc. For every ship we lost, the Sirians were now losing five, but—could we last out? Or would all our ships be wiped out first?

All of a sudden, the enemy appeared to realize the rate at which his ships were dying. Panic seized him. He turned and *fled!*

Out into space he drove, himself now only three thousand strong, towards his own distant worlds.

For a few minutes the Solar Fleets were stunned. A moment ago annihilation stared them in the face. Now the enemy had quit, had showed a yellow streak!

Neil looked at his sweetheart. Diane stared at her lover.

"He's going!" she exclaimed almost in a whisper.

"But why?" came the Course Commander's puzzled voice. "He'd just about got us!"

"Don't you see, boys," Diane burst out suddenly, "That mental attack broke him! He's fought all the battle on the *remnant* of his nerve, and now it's cracked up."

Even as she said it, the voice of Admiral Freeman cut in: "Regular formation all ships. The fleets will pursue the enemy to his destination."

"Good stuff, Dad"—this over the private wire from Diane and Neil together.

The pursuit soon became a dull, monotonous routine. True, there were skirmishes between scouts, and twice there were minor battles between the big ships, but these were merely incidental.

Day after day the six hundred remaining earth ships with their allies, scarcely five hundred more altogether, drove on into space.

Admiral Freeman, worn out with the strain—he was over seventy years of age at this time—relinquished his command to Neil and returned with the messenger scouts to earth.

For a month the pursuit continued. Then one day the enemy turned at bay. He had evidently decided that this three thousand vessels were, after all, a match for the thousand or so Solar ships.

But no! Neil knew now how to handle him. Without waiting for any sort of mental attack to develop, he simply ordered his fleet to independent action with K. N. P. guns.

Fifteen minutes of this and friend enemy had had enough. Unhappily for him, however, his main fleet had become separated from his headquarters section—or so it appeared.

Seeing this, Diane, now acting as Chief Observation Officer, called Neil's attention to it with the suggestion,

"Why not send out a couple of squadrons and *pinch* 'em?"

"Gee! You hit the ball every time, don't you," was his only comment.

The capture was effected without difficulty and with the loss of only one ship.

As the captive vessels approached, Neil sent out the thought,

"Chief Sirian Commander will prepare to leave his ship. He will go out into space to be conducted to us. Safe conduct is guaranteed. The alternative is complete annihilation."

"I will come," was the answering thought, given with a terrible intensity of bitterness.

THE interview reminded Diane and Neil of their own appearance before their foes, only now the tables were turned.

The conference lasted a full hour, during which time Neil searched the Sirian's thoughts to its depth. The enemy had learned his lesson. He knew now that our Solar System was not for him.

Understanding this, and realizing that, although he was utterly ruthless in warfare, yet the foe still had his own very definite code of honor, Neil said to him at last,

"You are an enemy, yet we respect you as a fair-fighting foe. Therefore we wish to deal justly with you. I wish to confer with my staff and then we will advise you of our decision."

For some few minutes Neil and Diane discussed all sides of the question, their ideas, with a few suggestions from some of the other officers being finally written out and unanimously agreed to. As soon as this was done, the Sirian was sent for.

"What is your decision?" was the thought he sent them. In it was no trace of defiance, nor, on the other hand, was there any note of fear. It was the direct and courteous question of a defeated general who must accept the inevitable, and who decides to do so with the best grace possible.

Slowly and carefully Neil spoke, voicing his thoughts as he sent them out.

"We have decided to treat you as an honorable foe, to trust your word that there will be no treachery. Do you give it?"

"I give my word," was the simple and obviously sincere thought returned.

"We accept it. These are the terms we offer you, that in the name of your planets you shall agree to.

"You will take your fleet back to their own system and remain within its boundaries unless we sanction otherwise.

"For our benefit you will leave with us one each of every type of ship in your fleet, together with sufficient officers and men to navigate them. These officers to explain to us the mechanisms of such things as we do not ourselves understand. These officers and men to be allowed to return to their own worlds, should they so desire, after the final ratification of the peace terms.

"If you accept these terms, we will at once withdraw our fleet from pursuit and let you all go free, trusting in your honor to keep the pact until its ratification by the rulers of both systems.

"If you refuse, you will be given ten hours in which to rejoin your fleet. At the expiration of that time we shall proceed to annihilate your fleet systematically, mercilessly, and completely, leaving only one vessel to return to Sirius with news of your fate."

"Enemy beings," came back the thought, a thought so sadly expressed that no one of all those conquering officers could do other than pity the fallen foe. "Enemy beings, you have treated us honorably. The wrong was ours in the first place, but you too can understand our need, which is as desperate as your own. Our great fleet is broken. We must return to our worlds in defeat, to tell them that the chance for our race is lost to us, and that most of us must perish.

"We have no enmity against you. Think kindly of us if you can."

Deeply moved the men stood in silence.

Then, for nearly the first time addressing one of the enemy directly, Diane spoke.

"We greatly regret your fate, even though we ourselves may share it. We feel for you in your defeat, but at present we cannot help. All we can say is 'Go in peace' no longer our enemy."

The Sirian stood silent. The turmoil of his emotions could be felt.

After a few moments Diane spoke again.

"Friend of Sirius, there is one ray of hope for your world as well as for our own. Your officer, Kan Atra, whom we took back with us from your scout vessel, is working with us on a possible project, which we hope may solve our problem. Rest assured that, if we find it, you also shall share in its benefits." Then stepping forward she held out her hand and, as the Sirian grasped it, she said, "Go back to Sirius with that ray of hope—and go as a friend.

ONCE more did the two friends join hands as they drifted down to earth. Once more did they receive the plaudits of the Solar System. This time representatives from every planet and inhabited satellite in the system were present.

At the end of a week of celebration, Neil, alone with Diane at last, said gently,

"Di, darling, let us slip away and get on with the work. I've had enough of this fuss," and on her enthusiastic agreement, he continued, "and, Di, what do you say we run off and get married first?"

"I'd love to, dear," she answered, "but somehow I think we'd be happier if we waited till our work is done. Remember there's still the big problem to face. Really we're no better off than we were last year." Then, as he kissed her in agreement, the door opened.

"I'm so sorry to interrupt," came the voice of the president himself, "I know you two want to get away—to your work—but first I have a small request to make of you. Will you, before you go, speak a few words to the assembled worlds, who are now waiting at their etherphones. Give them a word of hope. Tell them, if you can, that there is hope of salvation. Will you?"

Of course they agreed. Each gave the worlds a message of encouragement, and then, to their infinitive embarrasment, the president stepped forward to the screen, took each by the hand and said,

"Peoples of the Solar System, you have heard from these two friends that there is hope for us. Now you will all rejoice to know that in their efforts to find safety for you, they have also found happiness for themselves. It is an honor for me to announce the betrothal of the Lady Diane da Silva to Commodore Sir Neil Cameron, the two whom we all may thank for our deliverance from a terrible conquest."

When they reached home, they found Kan Atra very busy. He had practically completed his work. The plan he had thought of in the "Lady Diane" had proved successful so far.

He took them out to the testing grounds where he had had a little lake constructed, and what was their astonishment to see, right in the middle of this lake, a huge aluminum ball at least three hundred feet in diameter, anchored with strong chains.

"Now watch," he said.

From various points around the lake there were trained on to the base of the ball a number of ray machines. Kan Atra threw over some switches and from these machines there leaped out rays of a soft golden hue, all focussed on to the ball.

Immediately it began to strain upward against its anchors. Then as it steadied, they saw that the level of the lake was beginning to drop.

"What's happening to the water?" asked Neil.

"Going into the ball," was Kan Atra's

explanation. "The ray, which is similar to the one used to project our luminosity-balls, will, at certain frequencies, counteract the influence of gravity on certain substances, among which are certain metals and a few simple compounds such as water. As the rays are focussed just now, they are nullifying the earth's pull on the ball and also on the water that is immediately below the opening in it.

"Since the ball is exhausted of air, the water will be forced into it by atmospheric pressure from without. In the ordinary way, of course, this only gets the inside water level up to about thirty-feet, when its own weight prevents any further rise—but that is the most elementary physics, of course.

"However, when the ray is in action the water inside becomes practically weightless and so the pressure outside can force it up until the sphere is filled. Then the cables can be released and, with a little adjustment and manœuvring, the ball full of water can be moved about at will."

"So you really have succeeded?" said Diane after a long pause. "I always knew my idea was real, but somehow, now that it really does work, I can't quite believe it."

AS a matter of fact neither she nod Neil seemed to take in the marvelous truth of it just then. Perhaps all their experiences had left them so mentally satiated that they were incapable of taking in any more ideas for a time. At any rate the realization of it only seemed to reach their comprehension slowly. But when it did——!

It was not long before the president was called to inspect the project and, when he saw their demonstration, he unhesitatingly pronounced it practicable. He ordered work to be started at once on the construction of a large number of aluminum balls, each twenty miles in diameter, ready for the reception of the ocean water.

It was estimated that it would require about eight thousand of these balls, since the mass of water was equivalent to a single sphere of over three hundred miles in diameter. To build larger balls was, however, not practicable so they had to use this large number. About a thousand were to be constructed, each being used several times.

The construction of these balls and of the necessary machines for operating them took nearly a year, but instead of waiting for the completion of the whole series, they commenced to draw off the water as soon as there were sufficient balls available.

It was soon found, as Neil had warned them, that too rapid a removal of the weight would cause serious disturbances, and so it was arranged that the lifting of the oceans should be spread over a period of years to avoid danger of earthquakes. Even as it was there were many destructive shiftings of the earth's crust, but, fortunately, Neil's calculations had been so well made that these were nearly all foreseen and little or no loss of life occurred through them.

The problem of the disposal of the water had been a difficult one, but eventually, at Kan Atra's suggestion, it was removed to an orbit some millions of miles inside that of Mercury, where it was near enough to the Sun to prevent it from freezing. In fact, after it was set in steady rotation, it was found that it kept a temperature high enough to give the little watery planet a considerable atmosphere of vapor.

As soon as the work was started on earth, the Venerians and the inhabitants of the outer satellites followed suit, their oceans being added to the same mass, so that eventually there was a planet formed whose diameter was nearly a thousand miles. Mars, of course, had no ocean to

remove, so arrangements were made to transfer her surplus population to some of the less populated satellites and even to one or two of the larger asteroids.

The removal of the first group of balls was an event in Interplanetary History. A hundred of the great spheres were lifted simultaneously by the throwing of a switch by the originator of the idea, Diane herself.

The event, at President Egbert's request, had been made coincident with her marriage to Neil, when immediately the last ball had disappeared into the sky, the president stepped forward and, in the presence of delegates from all over the Solar System, and of Kan Atra and a few other Sirians, who had chosen to remain on earth for a time, he joined their hands in marriage.

The ceremony was conducted without any elaboration, since both felt that it was too solemn an occasion.

As soon as the ceremony was completed, a guard of officers—the survivors of the great battle—formed around the newly-married pair and before the crowds realized what had happened, the bride and groom were away on the "Lady Diane."

Where they went for their honeymoon is the one secret they never told.

OUR story is ended. The history of the years that followed is well enough known, how the ocean beds were fertilized, how the hot planet Mercury was found unsuitable for any of the peoples of the Solar System and so became a Sirian colony, how each succeeding generation born into the world is smaller than its parents, so that as time goes on, the stature of men will again adjust itself to the lessened size of the worlds, is in fact doing so at such a pace that we have already started to bring back our oceans, making our earth once again the delightful world it used to be.

All this is history and does not really belong to our story. What we have tried to tell you is the story of the romance of our wonderful grandparents, of their great love for each other that made their life together, and with their friendship with the honored Kan Atra, such an example to the worlds.

"May we be found worthy to follow in their footsteps" is the great hope and prayer of us who write, their two grandchildren, Diane and Neil the Younger.

THE END

When the Moon Moons

By WEBSTER WATSON

EVENING was just beginning. The Moon, half-hidden by a bank of clouds, peeked out occasionally after some especially thick, black cloud had sailed by.

Finally she flared up, "I don't mind your walking all over me, but for HEAVEN'S sake don't be all *night* about it! I know my place and what my particular job is, but I like, just as well as anyone else, to see now and then what is going on around me.

"My STARS! but those creatures on earth below are a strange lot," she explained half-aloud to a Comet who was only a few million miles away. "They never rest one minute. Ambitious, I call them. Always trying to go one higher than us. They built a cloth contraption and called it a Zip or Zep. A small multitude of them get into it, now and then. Then they go flying around at what they think, is a terrific speed.

"Sometimes an especially daring one of these earth creatures gets into a tiny, wee box affair, with wings. He or she flies across a pond, a mere puddle; then there is a great commotion. Wonder why they don't stage a big parade for Flier Robin. Maybe they've never heard what a long distance flier HE is!

"Did you ever hear anything QUITE so outrageous as what they do now on Broadway? Look there below. See those MILLIONS of Little Suns. They turn them on every night. Poor Sol (excuse *me*), I mean Mr. Sun, is just burned up! He hasn't said anything about it, but I know he is dreadfully chagrined. You wouldn't expect him to *beam* about it, would you? Preposterous, I calls it!

"Why a couple of them who think they are especially bright, fixed up a ball-like rig-a-ma-jig and actually set out in it for ME! IMAGINE! I was never more huffed in my whole existence. Suppose they were the two who started that rumor that I am made out of *green cheese.* Green Cheese! Who ever heard of such nonsense. I'm not saying that my feelings were not hurt. They *were;* I hid my face for days and if I hadn't had a date with Sol, dear (*excuse me*) I mean Mr. Sun, I never would have come out again.

"Hey, you clouds! Start moving. Don't you dare start banking for a shower. Get on over to China with you! There! Look there! There's that nice couple in Central Park again and I want to do an especially good job of mooning for them and incidentally, moon a bit myself over Sol, darling (*excuse me*), I mean Mr. Sun."

THE END

The Price of Peace

By MORTIMER WEISINGER

The essence of a short story is largely in the ending, which may not be revealed until the last sentence is read. In this tale the same thing appears, and we think anybody might be defied up to the last three paragraphs to tell what the ending is and what was the strange demonstration which was carried out.

Illustrated by MOREY

NOTE: The narrative related herewith is an authentic chronicle culled from the annals of the periodical, *Peace,* the official organ of the *Balfour Memorial Society.*—M. W.

Foreword

MARS, the insatiable god of war, has been doomed to oblivion. War, his ruthless agent of destruction and desolation, has been exiled into a state of obsoleteness. For three hundred years mankind has lived in a blissful Utopia untouched by this dreaded blight. The cause of this fortunate predicament has made history. Friction between despots, strife between nations, is well nigh impossible. No more will tyrants sacrifice human lives in the avaricious efforts to secure power. War, the inevitable, war, the accursed, has finally been ousted from the world.

Therefore, it is to an enlightened civilization that I, Thomas Kane, divulge the actual events which finally culminated in the universal ratification of the *Balfour Peace Pact.* I have extracted this hitherto undisclosed history from the Federal documents filed away in the secret archives of the United States War Department. Veritably, it is a wondrous revelation.

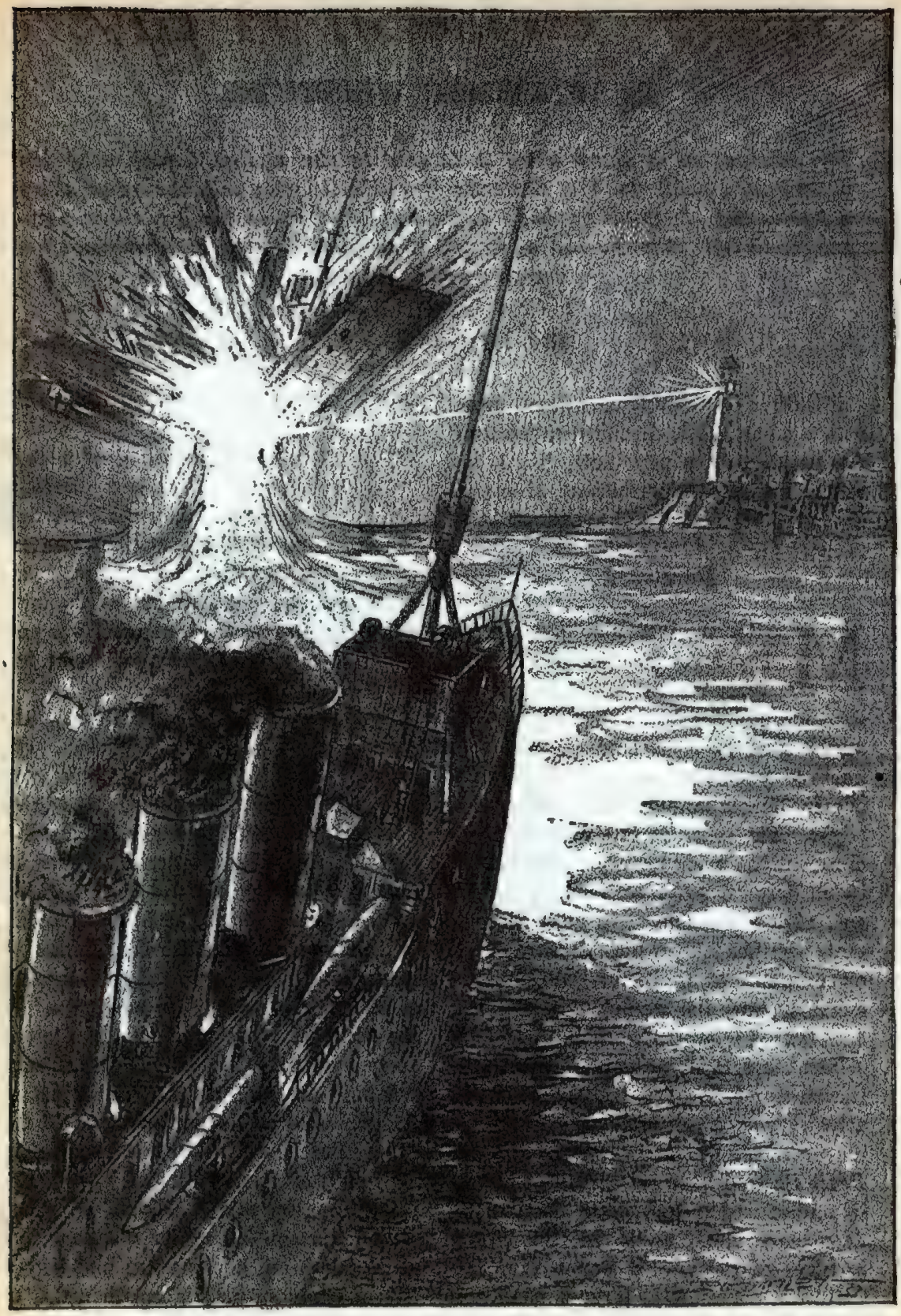
Thomas Kane, Editor, *Peace,* 2280.

1980 A. D.

THE abrupt falling of a book aroused Professor Balfour from his philosophic meditations. Here, at State University, in a laboratory that suggested the equipment of one of the most modern types, the erudite savant was permitted to experiment and fondle with test tubes as his fancy dictated.

Professor Robert Balfour was the world's most renowned scientist. His brilliant mind had years ago perfected a ray that had successfully eliminated that universally dreaded scourge—cancer. For that feat alone he was accorded superlative admiration. At the comparatively youthful age of forty, he had revolutionized the process of power distribution by inaugurating the practical, expenseless method that is maintained nowadays. In the score of years between the ages of forty and sixty, he had perfected such scientific devices, that he was hailed as the genius of all times, the wizard of the ages. But he was even more than that. Balfour was a composite of Bacon, Edison, Einstein, and Millikan. He possessed certain intangible qualities that singled him out and marked him with a halo much more magnificent than that of any of his predecessors.

The world, as adequate remuneration



A second later a thunderous boom was heard. The spectators gasped. The ray had worked! No more wars! All were thinking the same. At first curiosity had held the watchers in its grip. Now awe supplanted it.

for his altruistic services, (Balfour had struggled many years before he was recognized) had compensated him with two consecutive Nobel awards; and all were unanimous in the belief that he justly merited them.

Professor Balfour was the merest wisp of a man, physically. But if the man's physique was insignificant, there was nothing small about his personality. A pale-faced, little fellow, with a biggish head ornamented with thin brown hair and a silky beard, some keen force jumped out of him, that was like a bright blade. The eyes, that at first you took to be so extraodinarily mild, had depths in them that were like blue flame. The eyes held you, mastered you, and in the still placidity of that gentle face you read of a soul that was above pain, sorrow, joy —everything that influences the ordinary human being. It held a sense of bravery, also, relentless courage that made you shiver if you thought of it, for behind it lay a will and a power that nothing human could thwart. Here was a man you could not bluff, for the mind that looked out of him was analytical of your faintest motive, your most vagrant impulse.

If, by means of some miraculous power, one could have intercepted Balfour's train of thoughts prior to his disturbance, his musings probably would have been interpreted somewhat like this:

"Now I am weary—weary and old," he told himself. He shut his eyes to close out the sight of the endless litter of papers clustered on his desk, scrawled over, in the careless script of indifferent students, with symbols of chemistry and abstruse, elongated mathematical computations. He pushed the papers out of view and continued:

"In a few more years my ability for productivity will be practically exhausted. Before my time is up I would care for nothing better than to bestow upon the world some boon that would mark this era with such a degree of significance, that even the centuries of time would be powerless to erode it. Something big—bigger than my cancer eliminator—greater than my power distributor. It must be the greatest thing in the world!" he concluded emphatically.

Balfour, the dreamer, was swept away momentarily by his own enthusiasm which had amazingly soared to unprecedented heights. For hours, as if in a trance, the savant pondered. Then, as his mind reached the peak of its brilliance, his eyes brightened. He arose and, in a voice husky with emotion, whispered, "I have it—I have it." The words were almost incoherent. Quite suddenly he had conceived the solution of the perplexing problem which had obsessed his mind, leaving him awed with its wild, suggestive potentialities Now Professor Balfour's mind, it inevitably caused him ought to be thankful, he knew, to Him who had given the knowledge and vision to perceive the idea. The old man murmured a wordless prayer; he had set for himself a herculean task. *Professor Balfour had resolved to end wars!*

WHEN the full import of this daring resolution, together with all of its accompanying implications, manifested itself in a more concrete fashion in Balfour's mind, it inevitably caused him to become all the more determined in his almost fanatical aspiration to see the thing through. As to how he was to go about it, as to how a scientist could accomplish this feat, he had not the slightest or the vaguest glimmer of a plan.

Lest there be any understanding, it may be said right here and now, in full justice to the professor, that the salient incentive that spurred the scientist to set for himself such a prodigious, almost unachievable task, lay not in the desire to obtain eternal fame, glory and praise.

Balfour had no such mercenary, ulterior motives. He was extremely modest and unobtrusive when it came to such matters, being blissfully content if let alone and unmolested, in the haven of his laboratory. Professor Balfour was guided solely by the laudable ambition to render to the world some intransient, worthwhile service that would aid in making it an improved place for society and posterity to dwell in. And as everyone knows, he succeeded admirably.

Time, he decided, would be the vital element in helping him reach some practical means to gain his goal. He was sanguine of his ability to accomplish the task. Hastily he addressed a note to the Chancellor of the University requesting an indefinite leave of absence from his lectures, a sort of sabbatical leave. He had merely to say that he was working on a tremendous project and his request would be explicitly heeded. Also, he could order such aid and apparatus as he deemed necessary for the execution of his task. He would retire, secluded in the sanctuary of his impregnable laboratory, and would have absolutely free rein in regard to time, labor and capital. How long it would take him he could not say. One year, two years, perhaps five years —he would slave perhaps until he died.

It was in such a manner, marked only by the customary random speculation of the press, that Balfour withdrew from the public eye, only to return two years later to startle the world with his incredible discovery of the ages.

1982 A. D.

THE newspapers of April 25, 1982, fairly shrieked with scare-heads that heralded the return of the scientist. Since the disappearance of the diminutive scientist his appreciative public had rather missed him. They well knew that he had not been idle during those two years, accounting for the following feature article in the nation's leading morning paper:

NOBEL PRIZE WINNER ANNOUNCES LATEST DISCOVERY IS RESULT OF TWO YEARS OF RESEARCH

BALFOUR TO REVEAL DETAILS TO COMMITTEE

April 25, '82—"It was by sheer good luck that I stumbled on the key," modestly asserted Professor Balfour, eminent Nobel Prize winner, before a group of admiring reporters late yesterday evening, when questioned about his latest discovery.

"I experimented with high voltages and their effect on the atom," explained the scientist. "I believe I can release the titanic forces locked in the atom; but whether I can properly harness this colossal power remains to be seen. A rash utilization of my secret might spell devastation for our globe along with the rest of the solar system! First I must learn how to check its rampant flow."

When questioned as to what he intended to accomplish at the completion of his problem he non-committally replied: "That, too, remains to be seen."

Pressed hard by reporters for more information, in addition to the scant but sensational details already divulged, the scientist assented to their demands by offering to lecture before them the next Thursday evening in his own laboratory. He also suggested that a committee of physicists attend, so that the technicalities of the lecture could be interpreted to the press men.

The *New York Morning Call* will keep its readers fully posted on the affair and its sequences.

A SURVEY of editorial comment revealed unparalleled commendations of Balfour's project. Editorial writers with fertile imaginations, in a vivid rheto-

ric, graphically depicted Man as evolving from the Slave of Creation to be the Lord of Creation. High-salaried journalists pointed out that with the making available the energy lying latent in the atom, a spoonful of water would furnish sufficient power to drive the machines of the world for days. Youthful scientists saw the only obstacle to interplanetary travel, the lack of a powerful "fuel," removed.

The world, as a unit, hailed Balfour as one who had succeeded in realizing the dream of all scientists for the past decades.

All Balfour's contemporaries—distinguished scientists—avidly contemplated his enlightening lecture in the hope of seeing a revolutionized physics. They regarded it as a rare privilege to be one of the first select few to be accorded the honor of congratulating the eminent luminary.

Balfour, meanwhile, in his laboratory, labored unceasingly in his efforts to complete his invention. In his leisure moments he took notes which he planned to read at his exposition.

The evening of April 30, 1982, was heavily shrouded with illimitable anticipation. The utter stillness of the night air somehow seemed to express the tension of the nation. Mankind was on the verge of ascending the lofty pedestal of leisure. An impulsive world, led on by the attractive pictures painted by the press, saw only the liberation of a race, the freedom of mankind. "Balfour—liberator of the workers," became the byword of a frenzied population. The masses regarded the savant's technical explanation as the first stepping-stone to the new Utopian epoch. By means of a nation-wide hook-up all the world was to listen to Balfour's address.

THE house was crowded to capacity by a breathless audience aware of the knowledge that they were to witness the dawn of a new era. Statesmen, scientists, celebrities; such was the audience that greeted Balfour from his place on the rostrum-like elevation in his laboratory. The audience—silent, in the dark background—Balfour near his instruments—waiting in the brilliant flood-light.

Balfour, always a poor speaker, merely read from his prepared notes. In a quivering, almost inaudible voice he began.

"Two years of relentless toil. Two years of consistently discouraging failures. Two years of experimenting. That is the price I paid for my invention. Then, by the whim of Providence, I found it—my discovery. As you have all surmised, it is the disintegration of the atom. Well you know its power. You talk of leisure, of freedom from labor. I know. But let me paint you the other side of the picture.

"A ray—a diabolical ray that blasts and destroys all in its path! Such a ray—guided by sinister hands. Wars! Wars more terrible, more devastating than the last. The tottering of civilizations. Its accomplishments crumbling in smouldering, wasted ruins!

"My disintegrating machine is finished. I can control and concentrate its potent strength. In the hands of fiends—try to imagine the result!"

Never had words such a bewildering effect on an audience as followed the conclusion of this short, stupefying speech. It was a commotion that might well have been extracted from some melodramatic novel.

The quiet, but now penetrating voice of Balfour began again.

"Perhaps you are incredulous; you may doubt my claims. Wait!"

Balfour drew aside a curtain as he spoke. A plethora of intricate apparatus—switches, rheostats, vacuum tubes, and wiring was brought into view. Predominating over the scene was a huge,

ten-foot vacuum tube. It swelled out to a sphere at the center and at its widest part seemed to be covered with some silvery metal. A wheeled rack supported it in an upright position, and a maze of heavy electrical cables ran from it to the sockets in the wall. A very large and elongated X-ray tube connected to a mercury exhaust pump led to the same cable. Almost invisible within the X-ray tube was a small crucible containing some silvery liquid, presumably mercury. Alongside that, a miniature Coolidge tube, socketed in a mirror-surrounded receptacle, was seen. Wires from that led to the same thick cable.

Balfour explained what the cables led to. "These cables obtain power from an extremely high voltage source. They are necessary for the functioning of my machine." Turning again to the audience, he continued. "This machine is the realization of my ambitions. I achieved disintegration by the action of a flow of electrons vibrating at a tremendously high frequency.

"As you know, there are three rays produced by radio-activity, namely: alpha, beta, and gamma rays. Of these the alpha ray is the weakest and least penetrating, while the gamma ray is the most powerful and will penetrate at least one foot of iron. These rays are also different in their compositions. The alpha ray is a stream of positively charged helium ions, the beta rays are merely a flow of electrons moving at a high velocity, and the gamma waves are waves in the ether. The X-ray is similar to the gamma ray, but has not the same penetrating strength. Now to explain my machine. First of all I had an X-ray tube of special construction made for me. You see it here." He pointed to the large vacuum tube. "In this tube I produce an X-ray of infinitely greater power than the normal one. There are two extra electrodes sealed into this tube. A current and a tremendous voltage is made to go across the gap between them. This brings about an electrical discharge similar to the one in a Geissler tube, as they both embody a high frequency discharge in a vacuum. This discharge, or stream, goes before the X-ray and the Coolidge tube. The electrons are swept from their path by the ray and move along with it. Simultaneously a high vibratory rate is imparted to them, so the final result is a sort of a multi-magnified beta ray which I shall term a Zero ray.

"Do not confuse the two electrodes with those of the ordinary X-ray tube. A high intensity current and a high potential are used there too; but that ray is recognized as the cathode ray. The X-ray is caused by the impact of this cathode ray on some substance in its path which is termed an anti-cathode. The X-ray is famous for its ability to penetrate some organic substances; but this ray will penetrate any substance, organic or inorganic, and more than that, it is of so high a frequency that it will penetrate an atom!"

The scientists nodded concurrence.

"Now this is how my ray may be used for warfare," continued Balfour. "In the process of releasing atomic energy the atom is subjected to a powerful discharge which, instead of taking off a few electrons, completely blasts the atom to pieces, so that all the electrons are left flying around. This gives rise to a great pressure which can be used to explode the target of the ray. Of course, this is not the ideal method of obtaining atomic energy, for this would result in a terrific waste. The best thing to do would be to destroy the atom in such a way that all of the energy, that originally went into its making, would be available. I intend to work on that later; but you have learned how it could be applied as one of the most destructive weapons ever conceived by man!"

The remainder of the address was lost in the pandemonium that ensued. Frantic newspapermen besought Balfour for statements regarding the disposal of his machine. Agents for foreign governments offered Balfour fabulous sums for rights to his invention; but the scientist remained firm.

IT seemed to many that the scientist pursued the only expedient open when he subsequently announced, in a public message to the United States government, that his machine, accompanied with the requisite formulas and directions necessary for its operation, was henceforth to be the exclusive property of the War Department. Many sincerely believed that it was expressly because of the reiterated, clamorous editorials of the press, that Balfour had taken this course. At any rate, the fact remains that the scientist voluntarily, and apparently quite cheerfully, turned over his weapons to the war authorities. Retrospecting, we can see that his original intentions were to turn his ray over to the Government.

This sudden act met with instant approval. Now populace and press jointly lauded the professor. The savant was feted and honored by scientific organizations and peace societies.

Hardly had the world suffered the paralyzing effect of Balfour's doings, when its "paralysis" was superseded multi-fold by a proclamation issued by the President with the consent of Congress. It is now recognized as the *Balfour Peace Pact.**

This document, in brief, called for a universal ratification. The pledge, which the nations were to observe, was to consent to settle all conflicts ever arising between the powers by submitting the disagreements to arbitration. The United States was to be the sole judge of all controversies. Should a nation refuse to abide by or should it ignore the Pact, Balfour's ray would be employed as the medium of enforcing the agreement. Furthermore, definite date was set by the President by which the terms had to be accepted.

But what probably created the greatest furor of all was the notice annexed to the proclamation which duly declared that a public exhibition of the destructive potentialities of the ray would be held at Sandy Hook, on the eastern coast of New Jersey, the Saturday of the week of August 13th. Three ten-million-dollar destroyers, obtained by the sanction of the navy officials, were to be sacrificed for the purpose of testing the ray. The U. S. S. "Western," the U. S. S. "Isthmus" and the U. S. S. "Ingersoll," powerful ships of the sea, were the crafts to be annihilated in the bloodless battle for peace.

Hardly had the announcements been disseminated throughout the world, when a never-ending stream of curiosity seekers began to march toward Sandy Hook, that hazardous sand reef on the coast. Thousands raced in an effort to secure choice seats for the spectacle. Film companies commenced erecting scaffolds for "picture shooting," as is the cant. Of course, there were the usual calamity howlers, zealous pessimists, who vigorously protested that Balfour's machine might prove his own nemesis. Atomic energy, they claimed, would devastate the globe once it was liberated. So there was an almost parallel exodus going on to keep pace with the incoming hordes.

Enterprising business persons hastily constructed crude hotels to accommodate

* The *Balfour Peace Pact* undoubtedly commanded such unprecedented attention principally because of the status of world affairs at the time. A second Sino-Japanese War, which had been seething for decades seemed imminent. The World Court was dissolved because of its consistent impotence in settling international problems. The naval disarmament conference had recently disbanded. A race in armaments then began, with the United States hopelessly in the minority. Germany's extended 50-year moratorium had expired, with France and England standing by with snarling fangs. Russia had developed its nationalistic feeling to such a pitch that a few more years would see another belligerent nation for mankind to cope with. India had recently declared herself independent. Never had the world seen such a crisis.

—*Daniels, History of the Modern World, Volume 11, page 103.*

the thousands while they impatiently waited for the maneuvers. The majority of the mob slept on the beach during the hot nights, using the blankets which many had brought along with them.

At Washington, D. C., the nation's capital, the White House was already besieged with representatives of the various nations of the world, from Great Britain down to the smallest province.

DESPITE the oppressing heat of the day hundreds of thousands of people dotted the shores. To old Sol, relentlessly radiating unbearable heat, it was just another summer afternoon. Myriads and myriads of restless, impatient, moving creatures, resembling ever so much a swarming colony of ants, were anxiously watching and waiting. About one mile out, firmly anchored in the depths and spaced at one mile intervals, the three battleships could be seen. Lifeless, stripped of their crews, they floated, unaware of their impending fate.

Not another vessel could be seen. As far as the eye could reach nothing was there except the three ships. Naval authorities had suspended traffic for the day. It had been arranged that the scientist was to release the ray from the eighty-five foot lighthouse near Fort Hancock and the United States heavy ordnance proving grounds. At ten o'clock sharp the scientist was to project the ray, which was focussed on the U. S. S. "Western," for two seconds, then, if nothing drastic intervened, he was to explode the U. S. S. "Isthmus" and the U. S. S. "Ingersoll."

A whining curfew resounding from the distance informed the thousands that it was now five o'clock—now only five more hours to wait. Slowly, ever so slowly, the minutes ticked away. Minutes became hours. Seven o'clock. Eight. Several persons who became panic-stricken at the approach of the crucial hour had to be led away from the crowd.

With the coming of the night the heat had diminished. The quiet waters reflected the starry, moon-lit sky. A soft breeze wafted over the shore. Next, powerful searchlights helped illuminate the scene. Under their reassuring spell confidence returned.

At half-past-nine Balfour, escorted by the presidential party, alighted from an automobile to make his way to the lighthouse.

The cheering of the crowds was terrific, deafening. For a full minute the obstreperous din lasted, then it gradually subsided.

No one but the President observed the spasmodic weeping of the aged scientist.

Three more minutes! A hush descended over the now motionless crowd. The sudden quiet was almost terrifying. The fate of the world was to be decided within the next two minutes!

Zero hour!

From the lighthouse a brilliant pencil of light shot out; a thin stream of green, pointing straight out at the U. S. S. "Western." For a tenth of a second nothing happened. Then—holocaust! Where the ship had been floating there was seen a blinding flash. In that flash the steel hull and superstructure of the battleship were hurled far into the air. A second later a thunderous boom was heard. The spectators gasped. The ray had worked! No more wars! All were thinking the same. At first curiosity had held the watchers in its grip. Now awe supplanted it. Professor Balfour was the hero of the hour. There was no shouting, no yelling. All were far too weak to utter a sound. Everywhere people were crying.

Then, before the astounded audience could recover, the slim, virescent beam crept out again. In eerie fashion the beam shortened and lengthened, swept

around in a miniature arc and the U. S. S. "Isthmus" was no more!

Now the third destroyer. Once more the green light shot out. A flash, a boom, and the U. S. S. "Ingersoll" met the fate of its companion ships.

The subsequent events can be found in any history. The Pact was unanimously signed, fortunately averting several threatening wars. The only episode which marred the happiness of the nation was the sudden death of the aged professor. The old scientist had succumbed because of heart failure. The entire world mourned his passing, a fitting tribute to so great a man.

Epilogue—The Denouement

A FEW days after the death of the scientist a discussion was held in the private office of the President. The only persons present were the Secretary of War and the President's eldest son, Vinton. Both were intently listening to the President, who was speaking.

"Basically it was extraordinarily simple; but," continued the President, "it required sheer genius to engineer and fabricate the plan. Only he could have devised the plan so fool proof.

"Two years ago, Balfour, in a disguise, secretly visited me. He exacted an oath from me pledging me to secrecy. I promised, and he unfolded his project to me. At first, seeing his eyes glowing, like drops of molten metal, I thought I was confronted with a madman. But then I saw through it. Balfour was not mad—he was a genius! I became so enthusiastic over the idea that I impulsively promised him the fullest of cooperation from the government, and I will never regret it," sighed the chief executive. He continued, *"Professor Balfour did not destroy those ships by atomic energy!*

"Simultaneously with the projection of the 'ray,' which was nothing more than a new green light, an improvement of the neon variety, mines of the newly discovered *T.N.T. Double Plus* were detonated by radio control. Those mines were connected by myself, Vinton, and Balfour.

"Balfour's seclusion was a blind. Though the principles of the explanation which he expounded were sound, they were physically impracticable! Balfour told me that himself. The 'apparatus' was a rig-up that cost a few hundred dollars.

"The success of the entire machination hinged wholly on the unimpeachable reputation of the scientist. When I last saw him he seemed upset over his 'deception'. I believe he took it to heart, causing his death. Poor little old man—never in the history of the world has man been able to purchase peace at so inexpensive, yet so costly, a price."

THE END

Mellonta Tauta*

By EDGAR ALLAN POE

This description of a balloon voyage in the distant future shows Poe's genius for the burlesque and has an interest of its own in showing how we have surpassed the great writer's prophesies. The title is Greek. It means "These Are About To Be."

Illustrated by MOREY

ON BOARD BALLOON "SKYLARK,"
April 1, 2848.

NOW, my dear friend—now, for your sins, you are to suffer the infliction of a long gossiping letter. I tell you distinctly that I am going to punish you for all your impertinences by being as tedious, as discursive, as incoherent and as unsatisfactory as possible. Besides, here I am, cooped up in a dirty balloon, with some one or two hundred of the *canaille*, all bound on a *pleasure* excursion (what a funny idea some people have of pleasure!), and I have no prospect of touching *terra firma* for a month at least. Nobody to talk to. Nothing to do. When one has nothing to do, then is the time to correspond with one's friends. You perceive, then, why it is that I write you this letter—it is an account of my *ennui* and your sins.

Get ready your spectacles and make up your mind to be annoyed. I mean to write at you every day during this odious voyage.

Heigho! when will any *Invention* visit the human pericranium? Are we forever to be doomed to the thousand inconveniences of the balloon? Will *nobody* contrive a more expeditious mode of progress? This jog-trot movement, to my thinking, is little less than positive torture. Upon my word we have not made more than a hundred miles the hour since leaving home! The very birds beat us—at least some of them. I assure you that I do not exaggerate at all. Our motion, no doubt, seems slower than it actually is—this on account of our having no objects about us by which to estimate our velocity, and on account of our going *with* the wind. To be sure, whenever we meet a balloon we have a chance of perceiving our rate, and then, I admit, things do not appear so very bad. Accustomed as I am to this mode of traveling, I cannot get over a kind of giddiness whenever a balloon passes us in a current directly overhead. It always seems to me like an immense bird of prey about to pounce upon us and carry us off in its claws. One went over us this morning about sunrise, and so nearly overhead that its dragrope actually brushed the net-work suspending our car, and caused us very serious apprehension. Our cap-

* The following letter is prefixed to "Mellonta Tauta" in *Godey's Lady's Book*, in which it was first published:
To the Editor of the Lady's Book:—
I have the honour of sending you, for your magazine, an article which I hope you will be able to comprehend rather more distinctly than I do myself. It is a translation, by my friend Martin Van Buren Mavis (sometimes called the "Poughkeepsie Seer"), of an odd-looking MS. which I found, about a year ago, tightly corked up in a jug floating in the *Mare Tenebarum*—a sea well described by the Nubian geographer, but seldom visited, now-a-days, except by the transcendentalists and divers for crotchets.
Very truly,
EDGAR A. POE.

tain said that if the material of the bag had been the trumpery varnished "silk" of five hundred or a thousand years ago, we should inevitably have been damaged. This silk, as he explained it to me, was a fabric composed of the entrails of a species of earthworm. The worm was carefully fed on mulberries—a kind of fruit resembling a watermelon—and, when sufficiently fat, was crushed in a mill. The paste thus arising was called *papyrus* in its primary state, and went through a variety of processes until it finally became "silk." Singular to relate, it was once much admired as an article of *female* dress! Balloons were also very generally constructed from it. A better kind of material, it appears, was subsequently found in the down surrounding the seed-vessels of a plant vulgarly called *euphorbium*, and at that time botanically termed milkweed. This latter kind of silk was designated as silk-buckingham, on account of its superior durability, and was usually prepared for use by being varnished with a solution of gum caoutchouc—a substance which in some respects must have resembled the *gutta percha* now in common use. This caoutchouc was occassionally called India rubber or rubber of whist, and was no doubt one of the numerous *fungi*. Never tell me again that I am not at heart an antiquarian.

TALKING of drag-ropes—our own, it seems, has this moment knocked a man overboard from one of the small magnetic propellers that swarm in ocean below us—a boat of about six thousand tons, and, from all accounts, shamefully crowded. These diminutive barques should be prohibited from carrying more than a definite number of passengers. The man, of course, was not permitted to get on board again, and was soon out of sight, he and his life-preserver. I rejoice, my dear friend, that we live in an age so enlightened that no such a thing as an individual is supposed to exist. It is the mass for which the true Humanity cares. By the by, talking of Humanity, do you know that our immortal Wiggins is not so original in his views of the Social Condition and so forth, as his contemporaries are inclined to suppose? Pundit assures me that the same ideas were put, nearly in the same way, about a thousand years ago, by an Irish philosopher called Furrier, on account of his keeping a retail shop for cat-peltries and other furs. Pundit *knows*, you know; there can be no mistake about it. How very wonderfully do we see verified, every day, the profound observation of the Hindoo Aries Tottle (as quoted by Pundit)—"Thus must we say that, not once or twice, or a few times, but with almost infinite repetitions, the same opinions come round in a circle among men."

April 2.—Spoke to-day the magnetic cutter in charge of the middle section of floating telegraph wires. I learn that when this species of telegraph was first put into operation by Horse, it was considered quite impossible to convey the wires over sea; but now we are at a loss to comprehend where the difficulty lay! So wags the world. *Tempora mutantur* excuse me for quoting the Etruscan. What *would* we do without the Atalantic telegraph? (Pundit says Atlantic was the ancient adjective.) We lay to a few minutes to ask the cutter some questions, and learned, among other glorious news, the civil war is raging in Africa, while the plague is doing its good work beautifully both in Yurope and Ayescher. Is it not truly remarkable that, before the magnificent light shed upon philosophy by Humanity, the world was accustomed to regard War and Pestilence as calamities? Do you know that prayers were actually offered up in the ancient temples to the end that these *evils* (!) might not be visited upon mankind? Is it not really diffi-

cult to comprehend upon what principle of interest our forefathers acted? Were they so blind as not to perceive that the destruction of a myriad of individauls is only so much positive advantage to the mass!

April 3.—It is really a very fine amusement to ascend the rope-ladder leading to the summit of the balloon-bag and thence survey the surrounding world. From the car below, you know, the prospect is not so comprehensive—you can see little vertically. But seated here (where I write this) in the luxuriously-cushioned open piazza of the summit, one can see every thing that is going on in all directions. Just now, there is quite a crowd of balloons in sight, and they present a very animated appearance, while the air is resonant with the hum of so many millions of human voices. I have heard it asserted that when Yellow or (as Pundit *will* have it) Violet, who is supposed to have been the first aeronaut, maintained the practicabilty of traversing the atmosphere in all directions, by merely ascending or descending until a favourable current was attained, he was scarcely hearkened to at all by his contemporaries, who looked upon him as merely an ingenious sort of madman, because the philosophers (?) of the day declared the thing impossible. Really now it does seem to me *quite* unaccountable how any thing so obviously feasible could have escaped the sagacity of the ancient *savans*. But in all ages the great obstacles to advancement in Art have been opposed by the so-called men of science. To be sure, *our* men of science are not quite so bigoted as those of old:—oh, I have something *so* queer to tell you on this topic. Do you know that it is not more than a thousand years ago since the metaphysicians consented to relieve the people of the singular fancy that there existed but *two possible roads for the attainment of Truth!* Believe it if you can! It appears that long, long ago, in the night of Time, there lived a Turkish philosopher (or Hindoo possibly) called Aries Tottle. This person introduced, or at all events propagated, what was termed the deductive or *a priori* mode of investigation. He started with what he maintained to be *axioms* or "self-evident truths," and thence proceeded "logically" to results. His greatest disciples were one Neuclid and one Cant. Well, Aries Tottle flourished supreme until the advent of one Hog, surnamed the "Ettrick Shepherd," who preached an entirely different system, which he called the *à posteriori* or *in*ductive. His plan referred altogether to Sensation. He proceeded by observing, analyzing and classifying facts—*instantiae naturae,* as they were affectedly called—into general laws. Aries Tottle's mode, in a word, was based on *noumena;* Hog's on *phenomena.* Well, so great was the admiration excited by this latter system that, at its first introduction, Aries Tottle fell into disrepute; but finally he recovered ground, and was permitted to divide the realm of Truth with his more modern rival. The *savans* now maintained that the Aristotelian and *Baconian* roads were the sole possible avenues to knowledge. "Baconian," you must know, was an adjective invented as equivalent to Hogian and more euphonious and dignified.

NOW, my dear friend, I do assure you, most positively, that I represent this matter fairly, on the soundest authority; and you can easily understand how a notion so absurd on its very face must have operated to retard the progress of all true knowledge—which makes its advances almost invariably by intuitive bounds. The ancient idea confined investigation to *crawling;* and for hundreds of years so great was the infatuation about Hog especially, that a virtual end was put to all thinking properly so

called. No man dared utter a truth to which he felt himself indebted to his *Soul* alone. It mattered not whether the truth was even *demonstrably* a truth, for the bullet-headed *savans* of the time regarded only *the road* by which he had attained it. They would not even *look* at the end. "Let us see the means," they cried, "the means!" If, upon investigation of the means, it was found to come neither under the category Aries (that is to say Ram) nor under the category Hog, why then the *savans* went no farther, but pronounced the "theorist" a fool, and would have nothing to do with him or his truth.

Now, it cannot be maintained, even that by the crawling system the greatest amount of truth would be attained in any long series of ages, for the repression of *imagination* was an evil not to be compensated for by any superior *certainty* in the ancient modes of investigation. The error of these Jurmains, these Vrinch, these Inglitch and these Amriccans (the latter, by the way, were our own immediate progenitors), was an error quite analogous with that of the wiseacre who fancies that he must necessarily see an object the better the more closely he holds it to his eyes. These people blinded themselves by details. When they proceeded Hoggishly, their "facts" were by no means always facts —a matter of little consequence had it not been for assuming that they *were* facts and must be facts because they appeared to be such. When they proceeded on the path of the Ram, their course was scarcely as straight as a ram's horn, for they *never had* an axiom which was an axiom at all. They must have been very blind not to see this, even in their own day; for even in their own day many of the long "established" axioms had been rejected. For example— *"Ex nihilo nihil fit"*; "a body cannot act where it is not"; "there cannot exist antipodes"; "darkness cannot come out of light"—all these, and a dozen other similar propositions, formerly admitted without hesitation as axioms, were, even at the period of which I speak, seen to be untenable. How absurd in these people, then, to persist in putting faith in "axioms" as immutable bases of Truth! But even out of the mouths of their soundest reasoners it is easy to demonstrate the futility, the impalpability of their axioms in general. Who *was* the soundest of their logicians? Let me see! I will go and ask Pundit and be back in a minute. . . . Ah, here we have it! Here is a book written nearly a thousand years ago and lately translated from the Inglitch—which, by the way, appears to have been the rudiment of the Amriccan. Pundit says it is decidedly the cleverest ancient work on its topic, Logic. The author (who was much thought of in his day) was one Miller, or Mill; and we find it recorded of him, as a point of some importance, that he had a mill-horse called Bentham. But let us glance at the treatise!

Ah!—"Ability or inability to conceive," says Mr. Mill, very properly, "is in no case to be received as a criterion of axiomatic truth." What *modern* in his senses would ever think of disputing this truism? The only wonder with us must be, how it happened that Mr. Mill conceived it necessary even to hint at any thing so obvious. So far good—but let us turn over another page. What have we here?—"Contradictories cannot both be true—that is, cannot co-exist in nature." Here Mr. Mill means, for example, that a tree must be either a tree or not a tree—that it cannot be at the same time a tree and not a tree. Very well; but I ask him *why*. His reply is this—and never pretends to be any thing else than this—"Because it is impossible to conceive that contradictories can both be true." But this is no answer at all,

by his own showing; for has he not just admitted as a truism that "ability or inability to conceive is *in no case* to be received as a criterion of axiomatic truth."

NOW I do not complain of these ancients so much because their logic is, by their own showing, utterly baseless, worthless, and fantastic altogether, as because of their pompous and imbecile proscription of all *other* roads of Truth, of all *other* means for its attainment, than the two preposterous paths—the one of creeping and the one of crawling—to which they have dared to confine the Soul that loves nothing so well as to *soar*.

By the by, my dear friend, do you not think it would have puzzled these ancient dogmaticians to have determined by *which* of their two roads it was that the most important and most sublime of *all* their truths was, in effect, attained? I mean the truth of Gravitation. Newton owed it to Kepler. Kepler admitted that his three laws were *guessed at*—these three laws of all laws which led the great Inglitch mathematician to his principle, the basis of all physical principle—to go behind which we must enter the Kingdom of Metaphysics. Kepler guessed—that is to say, *imagined*. He was essentially a "theorist"—that word now of so much sanctity, formerly an epithet of contempt. Would it not have puzzled these old moles, too, to have explained by which of the two "roads" a crytographist unriddles a cryptograph of more than usual secrecy, or by which of the two roads Champollion directed mankind to those enduring and almost innumerable truths which resulted from his deciphering the Hieroglyphics?

One word more on this topic and I will be done boring you. Is it not *passing* strange that, with their eternal prating about *roads* to Truth, these bigoted people missed what we now so clearly perceive to be the great highway—that of Consistency? Does it not seem singular how they should have failed to deduce from the works of God the vital fact that a perfect consistency *must be* an absolute truth! How plain has been our progress since the late announcement of this proposition! Investigation has been taken out of the hands of the ground-moles and given, as a task, to the true and only true thinkers, the men of ardent imagination. These latter *theorize*. Can you not fancy the shout of scorn with which my words would be received by our progenitors were it possible for them to be now looking over my shoulder? These men, I say, *theorize;* and their theories are simply corrected, reduced, systematized—cleared, little by little, of their dross of inconsistency—until, finally, a perfect consistency stands apparent which even the most stolid admit, because it *is* a consistency, to be an absolute and an unquestionable *truth*.

April 4.—The new gas is doing wonders, in conjunction with the new improvement with gutta percha. How very safe, commodious, manageable, and in every respect convenient are our modern balloons! Here is an immense one approaching us at the rate of at least a hundred and fifty miles an hour. It seems to be crowded with people—perhaps there are three of four hundred passengers—and yet it soars to an elevation of nearly a mile, looking down upon poor us with sovereign contempt. Still a hundred or even two hundred miles an hour is slow travelling, after all. *Do* you remember our flight on the railroad across the Kanadaw continent?—fully three hundred miles the hour—*that* was travelling. Nothing to be seen, though—nothing to be done but flirt, feast and dance in the magnificent saloons. Do you remember what an odd sensation was experienced when, by

chance, we caught a glimpse of external objects while the cars were in full flight? Every thing seemed unique—in one mass. For my part, I cannot say but that I preferred the travelling by the slow train of a hundred miles the hour. Here we were permitted to have glass windows—even to have them open—and something like a distinct view of the country was attainable. . . . Pundit says that *the route* for the great Kanadaw railroad must have been in some measure marked out about nine hundred years ago! In fact, he goes so far as to assert that actual traces of a road are still discernible—traces referable to a period quite as remote as that mentioned. The track, it appears, was *double* only; ours, you know, has twelve paths; and three or four new ones are in preparation. The ancient rails were very slight, and placed so close together as to be, according to modern notions, quite frivolous, if not dangerous in the extreme. The present width of track—fifty feet—is considered, indeed, scarcely secure enough. For my part, I make no doubt that a track of some sort *must* have existed in very remote times, as Pundit asserts; for nothing can be clearer, to my mind, than that, at some period—not less than seven centuries ago, certainly—the Northern and Southern Kanadaw continents were *united;* the Kanawdians, then, would have been driven, by necessity, to a great railroad across the continent.

April 5.—I am almost devoured by *ennui.* Pundit is the only conversible person on board; and he, poor soul! can speak of nothing but antiquities. He has been occupied all the day in the attempt to convince me that the ancient Amriccans *governed themselves!*—did ever anybody hear of such an absurdity?—that they existed in a sort of every-man-for-himself confederacy, after the fashion of the "prairie dogs" that we read of in fable. He says that they started with the queerest idea conceivable, viz.: that all men are born free and equal—this in the very teeth of the laws of *gradation* so visibly impressed upon all things both in the moral and physical universe. Every man "voted," as they called it—that is to say, meddled with public affairs—until, at length, it was discovered that what is everybody's business is nobody's, and that the "Republic" (so the absurd thing was called) was without a government at all. It is related, however, that the first circumstance which disturbed, very particularly the self-complacency of the philosophers who constructed this "Republic," was the startling discovery that universal suffrage gave opportunity for fraudulent schemes, by means of which any desired number of votes might at any time be polled, without the possibility of prevention or even detection, by any party which should be merely villanous enough not to be ashamed of the fraud. A little reflection upon this discovery sufficed to render evident the consequences, which were that rascality *must* predominate—in a word, that a republican government *could* never be any thing but a rascally one. While the philosophers, however, were busied in blushing at their stupidity in not having foreseen these inevitable evils, and intent upon the invention of new theories, the matter was put to an abrupt issue by a fellow of the name of *Mob,* who took every thing into his own hands and set up a despotism, in comparison with which those of the fabulous Zeros and Hellofagabaluses were respectable and delectable. This Mob (a foreigner, by-the-by) is said to have been the most odious of all men that ever encumbered the earth. He was a giant in stature—insolent, rapacious, filthy; had the gall of a bullock with the heart of an hyena and the brains of a peacock. He died, at length, by dint of his own energies, which exhausted him. Nevertheless, he

had his uses, as every thing has, however vile, and taught mankind a lesson which to this day it is in no danger of forgetting—never to run directly contrary to the natural analogies. As for Republicanism, no analogy could be found for it upon the face of the earth—unless we except the case of the "prairie dogs," an exception which seems to demonstrate, if any thing, that democracy is a very admirable form of government—for dogs.

April 6.—Last night had a fine view of Alpha Lyræ, whose disk, through our captain's spy-glass, subtends an angle of half a degree, looking very much as our sun does to the naked eye on a misty day. Alpha Lyræ, although so *very* much larger than our sun, by the by, resembles him closely as regards its spots, its atmosphere, and in many other particulars. It is only within the last century, Pundit tells me, that the binary relation existing between these two orbs began even to be suspected. The evident motion of our system in the heavens was (strange to say!) referred to an orbit about a prodigious star in the centre of the galaxy. About this star, or at all events about a centre of gravity common to all the globes of the Milky Way and supposed to be near Alcyone in the Pleiades, every one of these globes was declared to be revolving, our own performing the circuit in a period of 117,000,000 of years! *We,* with our present lights, our vast telescopic improvements, and so forth, of course find it difficult to comprehend *the ground* of an idea such as this. Its first propagator was one Mudler. He was led, we must presume, to this wild hypothesis by mere analogy in the first instance; but, this being the case, he should have at least adhered to analogy in its development. A great central orb *was,* in fact, suggested; so far Mudler was consistent. This central orb, however, dynamically, should have been greater than all its surrounding orbs taken together. The question might then have been asked—"Why do we not see it?"—*we,* especially, who occupy the mid-region of the cluster—the very locality *near* which, at least, must be situated this inconceivable central sun. The astronomer, perhaps, at this point, took refuge in the suggestion of non-luminosity; and here analogy was suddenly left fall. But even admitting the central orb non-luminous, how did he manage to explain its failure to be rendered visible by the incalculable host of glorious suns glaring in all directions about it? No doubt what he finally maintained was merely a centre of gravity common to all the revolving orbs—but here again analogy must have been let fall. Our system revolves, it is true, about a common centre of gravity, but it does this in connexion with and in consequence of a material sun, whose mass more than counterbalances the rest of the system. The mathematical circle is a curve composed of an infinity of straight lines; but this idea of the circle—this idea of it which, in regard to all earthly geometry, we consider as merely the mathematical, in contradistinction from the practical, idea—is, in sober fact, the *practical* conception which alone we have any right to entertain in respect to those Titanic circles with which we have to deal, at least in fancy, when we suppose our system, with its fellows, revolving about a point in the centre of the galaxy. Let the most vigorous of human imaginations but attempt to take a single step towards the comprehension of a circuit so unutterable! It would scarcely be paradoxical to say that a flash of lightning itself, travelling *forever* upon the circumference of this inconceivable circle, would still *forever* be travelling in a straight line. That the path of our sun along such a circumference—that the direction of our sys-

tem in such an orbit—would, to any human perception, deviate in the slightest degree from a straight line even in a million of years, is a proposition not to be entertained; and yet these ancient astronomers were absolutely cajoled, it appears, into believing that a decisive curvature had become apparent during the brief period of their astronomical history—during the mere point—during the utter nothingness of two or three thousand years! How incomprehensible that considerations such as this did not at once indicate to them the true state of affairs—that of the binary revolution of our sun and Alpha Lyræ around a common centre of gravity!

April 7.—Continued last night our astronomical amusements. Had a fine view of the five Neptunian asteroids, and watched with much interest the putting up of a huge impost on a couple of lintels in the new temple at Daphnis in the moon. It was amusing to think that creatures so diminutive as the lunarians, and bearing so little resemblance to humanity, yet evinced a mechanical ingenuity so much superior to our own. One finds it difficult, too, to conceive the vast masses, which these people handle so easily, to be as light as our reason tells us they actually are.

April 8.—Eureka! Pundit is in his glory. A balloon from Kanadaw spoke us to-day and threw on board several late papers: they contain some exceedingly curious information relative to Kanawdian or rather to Amriccan antiquities. You know, I presume, that labourers have for some months been employed in preparing the ground for a new fountain at Paradise, the emperor's principal pleasure garden. Paradise, it appears, has been, *literally* speaking, an island time out of mind—that is to say, its northern boundary was always (as far back as any record extend) a rivulet, or rather a very narrow arm of the sea. This arm was gradually widened until it attained its present breadth—a mile. The whole length of the island is nine miles; the breadth varies materially. The entire area (so Pundit says) was, about eight hundred years ago, densely packed with houses, some of them twenty stories high; land (for some most unaccountable reason) being considered as especially precious just in this vicinity. The disastrous earthquake, however, of the year 2050, so totally uprooted and overwhelmed the town (for it was almost too large to be called a village) that the most indefatigable of our antiquarians have never yet been able to obtain from the site any sufficient data (in the shape of coins, medals or inscriptions) wherewith to build up even the ghost of a theory concerning the manners, customs, etc., etc., of the aboriginal inhabitants. Nearly all that we have hitherto known of them is, that they were a portion of the Knickerbocker tribe of savages infesting the continent at its first discovery by Recorder Riker, a knight of the Golden Fleece. They were by no means uncivilized, however, but cultivated various arts and even sciences after a fashion of their own. It is related of them that they were acute in many respects, but were oddly afflicted with a monomania for building what, in the ancient Amriccan, was denominated "churches"—a kind of pagoda instituted for the worship of two idols that went by the names of Wealth and Fashion. In the end, it is said, the island became, nine-tenths of it, church. The women, too, it appears, were oddly deformed by a natural protuberance of the region just below the small of the back—although, most unaccountably, this deformity was looked upon altogether in the light of a beauty. One or two pictures of these singular women have, in fact, been miraculously preserved. They look very odd, *very*—

like something between a turkey-cock and a dromedary.

Well, these few details are nearly all that have descended to us respecting the ancient Knickerbockers. It seems, however, that while digging in the centre of the emperor's garden (which, you know, covers the whole island), some of the workmen unearthed a cubical and evidently chiselled block of granite, weighing several hundred pounds. It was in good preservation, having received, apparently, little injury from the convulsion which entombed it. On one of its surfaces was a marble slab with (only think of it!) *an inscription—a legible inscription.* Pundit is in ecstasies. Upon detaching the slab, a cavity appeared, containing a leaden box filled with various coins, a long scroll of names, several documents which appear to resemble newspapers, with other matters of intense interest to the antiquarian! There can be no doubt that all these are genuine Amriccan relics belonging to the tribe called Knickerbocker. The paper thrown on board our balloon are filled with fac-similes of the coins, MSS., typography, etc. etc. I copy for your amusement the Knickerbocker inscription on the marble slab:—

THIS CORNER STONE OF A MONUMENT TO THE MEMORY OF
GEORGE WASHINGTON,
WAS LAID WITH APPROPRIATE CEREMONIES ON THE 19TH DAY OF OCTOBER, 1847, THE ANNIVERSARY OF THE SURRENDER OF LORD CORNWALLIS TO GENERAL WASHINGTON AT YORKTOWN, A.D. 1781,
UNDER THE AUSPICES OF THE WASHINGTON MONUMENT ASSOCIATION OF THE CITY OF NEW YORK.

This, as I give it, is a verbatim translation done by Pundit himself, so there *can* be no mistake about it. From the few words thus preserved, we glean several important items of knowledge, not the least interesting of which is the fact that a thousand years ago *actual* monuments had fallen into disuse—as was all very proper—the people contenting themselves, as we do now, with a mere indication of the design to erect a monument at some future time; a corner-stone being cautiously laid by itself "solitary and alone" (excuse me for quoting the great American poet Benton!) as a guarantee of the magnanimous *intention.* We ascertain, too, very distinctly, from this admirable inscription, the how, as well as the where and the what, of the great surrender in question. As to the *where,* it was Yorktown (wherever that was), and as to the *what,* it was General Cornwallis (no doubt some wealthy dealer in corn). *He* was surrendered. The inscription commemorates the surrender of—what? —why, "of Lord Cornwallis." The only question is, what could the savages wish him surrendered for. But when we remember that these savages were undoubtedly cannibals, we are led to the conclusion that they intended him for sausage. As to *how* of the surrender, no language could be more explicit. Lord Cornwallis was surrendered (for sausage) "under the auspices of the Washington Monument Association"—no doubt a charitable institution for the depositing of corner-stones.—But, heaven bless me! what is the matter? Ah! I see—the balloon has collapsed, and we shall have a tumble into the sea. I have, therefore, only time enough to add that, from a hasty inspection of fac-similes of newspapers, etc., I find that *the* great men in those days among the Amriccans were one John, a smith, and one Zachary, a tailor.

Good-bye, until I see you again. Whether you ever get this letter or not is a point of little importance, as I write altogether for my own amusement. I shall cork the MS. up in a bottle, however, and throw it into the sea.

Yours everlastingly,

PUNDITA.

DISCUSSIONS

In this department we shall discuss every month topics of interest to readers. The editors invite correspondence on all subjects directly or indirectly related to the stories appearing in this magazine. In case a special personal answer is required, a nominal fee of 25c to cover time and postage is required.

Science Fiction on the Screen

Editor, AMAZING STORIES:

Having noticed a letter in your Discussions columns recently from a reader who asked why there were so few scientifilms, I am writing with information which will doubtless be of interest to you, that certain reader, and *all* stf. devotees: at the present time, twenty-three amazing stories are scheduled for production. Tales of mechanical men, of invaders from Mars, of the inspiring future, adventures ahead and back in time, startling scientific secrets, and the end of our world. All stories similar in vein to what is read in your pages, and in fact some have been taken from your publication.

Our fan magazine of science fiction has the news on these pictures in the special scientifilm section, and the new ones, plots, characters, and other interesting information is given each month. Those wishing more details please write.

Scientifilm Head.,
Science Fiction Digest,
87-36 162d St.,
Jamaica, N. Y.

(We shall be glad to see good honest science fiction with its full mede of adventure appearing on the screen, in place of the almost demoralizing episodes which are now being produced. There is a feeling more or less prevalent that the present type of pictures shown at the screen theatres are more or less to be deprecated. If science fiction is properly given, the demoralizing factor will disappear.—EDITOR.)

Some Very Good-Natured Criticism—The New Club—The "Cosmos Club"—How to Become a Member

Editor, AMAZING STORIES:

Sometime ago I wrote you about the formation of the Edison Science Club. This was published in the January issue of AMAZING STORIES. Since this time another club has been formed—the Cosmos Science Club. To make a long story short these two clubs have merged. The new club will be under the name of Cosmos Science Club, because considerable material has already been printed using this name. If you want to join this club write to:

Edward F. Gervais,
512 S. Pennsylvania Avenue,
Lansing, Michigan.

He will send you an application blank. When you return this application blank please enclose a 3c stamped envelope and he will send you a membership card. Only one issue of the clubs paper has as yet been published and articles of especial interest in that issue will be reprinted for the benefit of new members. The club paper will be either mimeographed or printed—which, will be decided by the members.

Now for a comment or two about your (pardon me "our") magazine. I am especially delighted with the cover—not that I particularly objected to the old one but I like this one much better. I do not, however, like the captions of almost every paragraph of a story. It is all well and good to name each chapter—but not each paragraph. I know that you cannot please every one but I think a good many of your readers agree with me. Its size and price suit me to a "T". In fact I can think of nothing wrong with it except some of the stories, but I know that other people like the kinds of stories I don't and after all I don't *have* to read those I don't like.

Edward C. Love, Jr.,
106 N. Jackson St.,
Quincy, Florida.

(We have always taken an interest in science correspondence clubs, many of which have been started, it is fair to say, under the auspices of our magazine to at least a certain extent. We hope that this notice will bring you lots of members. We are giving so very much thought to the covers that it would be very mortifying if our efforts do not result in an advance in this feature of the magazine. We know it is a feature because, so many have written about our cover illustrations and about their value as illustrations of the stories, that we feel that they are worthy of our very best attention. The magazine certainly looks far better than it did in old times. —EDITOR.)

Back Numbers Wanted

Editor, AMAZING STORIES:

I would like to get copies of the April, May and June, 1926, issues of A. S. (Vol. 1, No. 1,—Vol. 1, No. 2,—Vol. 1, No. 3.)

If you have any of these issues on hand would you please quote the price, or if not, please enter my name as one who would like to get copies of these issues as soon as possible.

Carroll H. Weyrich,
6 N. Gorman Avenue,
Baltimore, Md.

A Letter of Criticism from a Friendly Reader

Editor, AMAZING STORIES:

Recently a number of persons stated that they were writing their first letters to Discussions, and since I am feeling slightly industrious at the present moment I too shall join the ranks of the first-letter-writers. Pray print this epistle, if possible, as I want the whole world to know my grievances.

A. S. is supposedly a magazine of science-fiction, yet the science in altogether too many stories of late has been almost non-existent. Consider the latest from Olsen, "The Crime Crusher." There was but a wee bit of science (or what masqueraded as science) in that tale. Olsen's explanation of the action of Smith's machine was excellent until he dragged in those ancient, overworked, and misused terms "4th dimension" and "hyperspace," the latter of which is meaningless. There was not another line of science in that tale which was just an ordinary adventure story. In short, "The Crime Crusher" and others of Olsen's supposedly scientific detective stories did not belong in a magazine of science fiction.

And the same is true of "Tumithak of the Corridors" and its recent sequel. Tanner babbled glibly of disintegrating machines and fire hoses without any real attempt at outlining the whys and wherefores of those machines.

John Campbell, Jr., ah! there's a man who can really write *science* fiction.

The editorials are excellent and the new covers, as most of the readers seem to indicate are just what A. S. needs. But I do not approve of the new internal make-up. Those sub-titles add nothing to the story and often detract.

But as a whole, "our" A. S. is still *the* science fiction magazine.

William Hendrikson,
176 Convent Ave.,
New York City.

(Different readers take widely different vews of our authors' work. Bob Olsen is distinctly a favorite with many readers. "Tumithak of the Corridors" was so much admired that we were more than glad to get a sequel to it, and some of our readers have found the sequel to "Tumithak of the Corridors" superior to the original, and we can assure our correspondent that the original Tumithak story received plenty of praise. We have given much of Mr. Campbell's work and are looking forward to the time when we can give more; but our space is limited. The proverb says that "One man's meat is another man's poison".—EDITOR.)

Our Covers and Stories Discussed

Editor, AMAZING STORIES:

What's the matter with the readers lately! No letters from them on the Quarterly, I mean. All the correspondence in the Spring-Summer edition is directed to the Monthly; and that's too bad because the Quarterly can certainly stand on its own. Here's to it!

That Mr. Sigmond's cover—I guess it's Sigmond's, there's no signature on it—is splendid. Simple, yet purposeful.

Read the shorter stories, "Valley of the Blind" and "Celestial Pioneers" first. Mr. Gelula's yarn I didn't think so fine as his "Automaton", but it held interest. "Celestial Pioneers" was a fine bit of work by a new author, I believe, J. G. Ohmert.

To see Bruce and G. C. Wallis in your pages again *was* something worthwhile. Remember "The World at Bay" and others? I do.. "The Mother World" was jammed full of science fiction, and I imagine would have been called classic had it appeared say three years ago. Reading science fiction year-in and year-out, I believe we readers become used to good stories. Perhaps we remember certain tales of yesteryear as "classics" because they were read when we were new to science fiction. Certain of the present offerings, read back in 1927, might equally well have lived in our memories. So, though I'm not quite inspired to term "The Mother World" classic, I will congratulate you, Bruce and G. C., on an entirely satisfactory novel. And good work, Morey, on the illustrations!

What I have said in the latter paragraph applies too, I think, to "The Man from To-Morrow". Excellent! and yet it seems I liked "The Blue Barbarians" a bit better; and "After 12,000 Years" was unusual; and "The Sunken World"

—here's a rave for a story years old! There was a story for you!

Don't think that "The Man from To-Morrow" fell short in my estimation, though. Indeed, no. It was every bit your foreword said it was. John Wormwood's speeches and actions could not but fail to interest. And at times Mr. Coblentz wrote so convincingly, that I almost came to believe the 20th century to be an awful one! Many truly novel ideas in that story! Especially did I get a kick out of the movable walls, and Wormwood's "What would you think of a man who couldn't take off his clothes till he died?"! His passion, also, for Alice Whitcomb was a "highlite" of the story. Artist Munson's illustrations, greatly resembling Morey's, favorable.

A word about the book-length feature of one of your Quarterlies about a year ago. I'm afraid I seem to have forgotten its name, but let that not be any reflection on the excellence of the story. It was by Fletcher Pratt. It, too, concerned a stranger to our world, though he was not from the future, but from another world. Seems to me the title was similar to "The Man from To-Morrow". Can't think of its name for the life of me. Nevertheless, printed in modern times or not I'd make little hesitation in calling it classic. "Eminently worth remembering". Tell me what the name of that story was, will you? And much sincere, if belated, praise to Mr. Pratt.

Forrest J. Ackerman,
530 Staples Avenue,
San Francisco, Calif.

(The book length feature that you refer to was "A Voice Across the Years" which appeared in the Winter 1932 Quarterly. Mr. Coblentz's story we considered extremely good and one of his very best efforts and there certainly was a lot of truth in it in the line of criticisms of our foolish ways.—EDITOR.)

Back Issues of AMAZING STORIES for Sale

Editor AMAZING STORIES:

I have the following copies of AMAZING STORIES which I will sell:

Volume 2—Nos. 9 and 12; Volume 3—Nos. 1, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; Volume 4—Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12; Volume 5—Nos. 1, 2, 3, 4, 5, 6, 7, 10, 11, 12; Voume 6—Nos. 1, 2; Volume 7—Nos. 4, 5, 6, 7, 8, 9, 10, 11, 12.

Also the following Quarterlies: 1928, Spring, Fall, Winter; 1929, Spring, Summer, Fall, Winter; 1930, Spring, Winter; 1931, Spring, Summer, Winter; 1932, Fall and Winter.

I would appreciate the names of any prospective purchasers.

C. K. Mansuy,
McLean, Va.

Some Comments on Stories Which Have Appeared in Our Columns

Editor AMAZING STORIES:

I enjoyed your June issue very much and I think it is the best you have put out since the change in the type of covers. The make-up of the magazine is much neater, but Paul's covers and inside illustrations were superior to the ones you have at present. Stanton A. Coblentz's story in the Quarterly was excellent. I wish you had more stories by Rementer, who also wrote satirical science fiction.

I note with pleasure that Clark Ashton Smith is now writing for AMAZING STORIES. It's too bad that Merritt doesn't write for you. Some stories that I have liked particularly were "The Second Deluge" by Serviss, "The Man Who Could Vanish" by Verrill, "The Red Dust" by Leinster, "Comet Doom" and "Space-Rocket Murders" by Hamilton, "The Time Deflector" by Rementer, most of the H. G. Wells reprints, all of Merritt's work and all that I have read by Coblentz.

I would like to discuss science fiction with some fans. If someone has back copies of A. S., Science and Invention, Argosy, etc., for sale at reasonable prices, will they please communicate with me.

Geo. Brandes,
141 So. Church St.,
Schenectady, N. Y.

(It is a number of years since we published the two stories by Rementer. We do not know of course when the spirit will move him to do more for us. We have now excellent writers whose work is really accumulating so we do not feel that it is worth while to say that work by any particular author is desired. We hope that this letter will bring you the letters which you desire and we are sure that you will hear from some of our readers about the magazines you would like to purchase.—EDITOR.)

A Letter of Criticism and Suggestions for Improvement

Editor AMAZING STORIES:

The purpose of this letter is to give a long-silent and long-suffering reader an opportunity to get a number of things

"off his chest" anent the AMAZING STORIES of to-day.

The new covers meet with my approval as they reflect the spirit of A. S. in a more satisfactory manner than the former ones. It is, however, somewhat sad to see the familiar great "A" disappear off the cover. That large "A" with the remaining letters of the words "Amazing Stories" dwindling away to the right had become the trade mark of A. S. and the magazine is not the same without it. But the change is for the better.

On the other hand, I consider the new typography to be a decided change for the worse. Briefly, the many sub-headings which are scattered through each chapter cause the story to become jerky and staccato in the reading. Further, many of these sub-headings being merely repetitions of sentences or phrases in the story itself, are altogether superfluous. And from the economic viewpoint, those sub-headings deprive the reader of three to four pages of fiction each month.

It seems to me that A. S. is in danger of becoming monotonous once again. I say "once again", for before the new covers and typography were introduced, the magazine was stereotyped in form. The recent alterations freshened it, but again it is becoming wearily the same from issue to issue. To prevent this I suggest occasional contests, more illustrations, and the scattering of various bits of news of activities in the world of science through the magazine.

In regard to illustrations, I am one of of the Old Guard which maintains that Paul is the ace of science fiction artists.

I think that if you will seriously cogitate upon my criticisms you will realize that I am correct and that you will act accordingly, thereby producing a better AMAZING STORIES. It might also be interesting to see whether other readers agree with me or not.

Milton Kaletsky,
2301 Morris Avenue,
New York, N. Y.

(We have received so many communications from our readers objecting to the cross-headings that we are ceasing to use them. The monotony of the magazine of which you complain is due to the fact that it is specifically a story magazine as far as the body of it is concerned, that it is preceded by an editorial which is always in the line of popular science and the closing pages are devoted to communications from our readers. We have received numbers of favorable comments on the editorial which we are now making something like double the former length. In a book of nearly a hundred years ago, we came across the picture of the English locomotive engine of the middle of the last century and gave that which is more or less of an innovation in the line of pictures, but we do not want to increase the number of pictures because our space is limited and the letters from readers under the head of Discussions are assuming a very important place. The mere fact that they take a little more room because we have discarded the old type and are using larger and more legible typography involves the devoting more room to them because we want to give Discussions as prominent a place as ever. So one of your criticisms will be acted on in the omission of cross-headings. The magazine has been greatly improved by the use of larger type.—EDITOR.)

Cheerful Criticisms to Help Our Spirits in the Depression

Editor, AMAZING STORIES:

Well, here comes another of those good-natured and well-meaning letters of criticism!

Battery, attention!

Aiming point: 222 W. 39th St., New York City.

Deflection: plateau zero, drum 100.

Site: zero.

Shrapnel: Kr. 30.

Battery, one round, 2000!

"On the way, sir!"

The February and March issues of A. S. were particularly good, and averaged higher in my estimation than the January issue.

Despite the quality of some of your stories, there are still little points which might so readily be improved, that I for one, believe they should be. Of course, I realize, too, how excruciatingly hard it is to secure exceptional science fiction stories, but perhaps a few contests now and then would enable you to make a wider choice.

Now for a volley at your March issue, which was exceptionally good. I enjoyed Mr. Tooker's "Tomb of Time." He has taken an old—I almost said an overworked—motif (shall we call it the "Lost World" motif)? and by careful handling and authentic treatment, made a fairly decent and quite exciting story. A less expert technician than Mr. Tooker would certainly have failed to hit the mark.

"Beyond the End of Space" is handled

with Mr. Campbell's usual flawless science. Without much character portrayal or exceptional plot, he manages to hold interest and maintain considerable suspense. As I have said, his science is up to the minute, but his plot smacks of something akin to Dr. Smith's "Skylark of Space." The brave hero and the dastardly villain are there, and the usual efforts of one to outwit the other, with the probabilities stretched just a trifle. All Mr. Campbell has omitted is the bo-o-o-tiful gal. Ah, well, Mr. Campbell, I can't find it in my heart to condemn you for that! The variety of basic plot situations is, after all, limited. Also, I have a suspicion that we are brothers in a sense—

"In the Scarlet Star" is handled well enough, but the story is not worthy of Mr. Williamson's talents—at least not in its present form. However, in the view of the Williamson fans, I am doubtless committing sacrilege in daring to criticise him. Let it pass.

Richard Rush Murray will write an excellent story some day, if he keeps trying. "Stellarite" is, however a very mediocre story, and is based on at least two obvious fallacies, and the remainder of the science is not any too sound. But to elucidate: The "Stellarite" in its journey between the earth and the moon, had still a velocity around the Sun, which was the same as that of the Earth-Moon system. This velocity would have absolutely prohibited the ship falling into the Sun; its attraction and the centrifugal force of rotation of the Earth-Moon system are in equilibrium. Thus the "Stellarite" would have held her own orbit around the Sun, and either become a satelite of the Earth or of the Moon, or have fallen into one or the other. In space there is no justification for believing that Cosmic Rays are incident upon any point from one direction more than any other. Therefore how could any "pressure" be developed? Also, the point of the velocity approaching the square of the speed of light. Without a little more enlightening, we refuse to believe that. Then the matter of "metallic helium." If it were permanently cold—that is, contained no heat whatsoever—it could absorb no heat, so would be incapable of producing any sensation of cold. The sensation of cold is produced by the extraction of heat from the body. If heat had been extracted, the temperature of the metal would inevitably have been raised; the author specifically states that this was not the case. Q. E. D. metallic helium would either not be without heat, or it would have no effect of cold. Mr. Murray must realize that there are many of his readers who object to so many inaccuracies. He must at least make the statements seem believable.

"Stallion's Trappings" is okeh. It is at least short and to the point, and holds interest.

"Flame Worms of Yokku," while there is little scientific information in it, is likewise okeh. It fills the requirements of some of your readers for an exciting story and is very well handled by Mr. Wells.

Let us conclude an overlong and boresome letter.

"Attention! March order!"

And so, we leave you in peace once more.

J. L. Winks,
7817 East End Ave.,
Chicago, Illinois.

(You will find a letter from the author of the "Tomb of Time" in which Mr. Tooker replies to some criticisms. We are glad that you approve of his technique. You must not be afraid to criticise, even so distinguished an author as Mr. Williamson. An author who has his work put in print, at once lays himself open to all kinds of attack. The best proof that we do not consider your letter overlong or boresome is that we publish it and let it speak for itself. Perhaps the author of "Stellarite" will answer your quite ingenious question.—EDITOR.)

A Request from England for Back Numbers of AMAZING STORIES

Editor AMAZING STORIES:

Would any reader who has back numbers of "A. S." for sale, please communicate with me. Those I require are the Jan., Sept., Oct. and November issues of 1931, and others previous to that year.

With the best of wishes for a long life to your marvelous magazine.

E. George Walton,
14, St. John's Mansions,
Clapton Square,
Clapton,
London, E. 5.

(We hope that our correspondent in London will succeed in getting back numbers of our magazine and we will put him in touch with our Circulation Departmen to see if that department can help him. Many of our readers say that they have back numbers to sell—perhaps you will hear from some of them. We always get very pleasant communications from English readers.—EDITOR.)

The Question of Cross-Headings, Which Are Objected To (We Are Discontinuing Them)—A Good Word for Some Authors

Editor AMAZING STORIES:

I was much perturbed by your new make-up. I wish you would discontinue the idea of placing sub-headings over each paragraph or so. I find it extremely annoying and entirely superfluous. Those headings destroy much of the interest in the story as one's eye can't help reading those parts of the story far ahead of where one happens to be reading. Being one of those who read by word recognition, I can't overcome this trouble. It has ruined several stories for me already. Besides, it is not needed. Anyone who would be so stupid or dull as to be unable to catch the drift or intent of a paragraph and would require the referring to headings, would never read your magazine in the first place.

"Tumithak in Shawm" was one of the best stories you have published for some time. Let's have more about him. "Warriors of Zantos" was excellent and quite refreshing.

By the way, hasn't Sigmond got any original ideas for his covers? The June cover was merely a combination of what had gone before. He surely ought to be able to draw something else than globes, space ships, and red dragons. Why not give Muller a chance now that you have gone modernistic? He ought to be excellent. You could also use him on the inside illustrations. It would be more in keeping with the cover, and would raise AMAZING STORIES quality even higher. Try it and see.

Donald A. Wollheim,
801 West End Avenue,
New York City, N. Y.

(For your comfort we can inform you that in the future stories are not to be ruined for you by cross-headings. You will observe a change in the cover; while illustrating stories the tone is subdued. The effort is made to give a milder aspect to the picture than was to be seen in them in previous years. We think you are going to like the illustrative cover designs in the new and subdued tones, the glaring effects being completely cut out.—EDITOR.)

An Excellent Letter from a Favorite Author

Editor, AMAZING STORIES:

Considerable water has flowed under various bridges since I last wrote at (any) length for either AMAZING STORIES or "Discussions." Maybe joining the great unemployed has made me less sure of everything on which an opinion can possibly be held. More specifically, I lend my copies as fast as they come out to a friend, and he is not in a position to return them as rapidly as I could wish. Thus I cannot quote chapter and verse if and when I want to criticise. And apart from all these a sort of heavy lethargy has overwhelmed my pen of late, as most members of the ISA will testify. I won't try to account for it or excuse it. I apologize, and when I get a packing case of mail filed or scrapped I may appear again among the living.

Before turning to the specific challenge which gave rise to this letter, let me give Morey a good-sized hand. He didn't see the scenes of "The Arrhenius Horror" exactly my way, but the story was written under the exotic influence of Paul. What is more to the point, he made me see the story his way. And his drawing for the story "Jeremiah Jones" is exactly what it should be in every respect. That drawing worried me a lot when I learned that Jeremiah was going to appear. But now the clouds have vanished.

One thing leads merrily to another. The key-note of the new AMAZING STORIES has been experiment. Morey has been experimenting. I had to look twice at the illustration for "The Bronze Door" to be sure it was his. The authors have been experimenting and as with every good experiment, some of the conclusions have been positive, some negative, and many just dead level. "The Last Earl" was unfortunate, I think. I know that those dinosaurian mylodons (ancestors of cows, too!) in the QUARTERLY were a jinx from any angle. But the new covers, especially last month's and excepting the second, are quite beyond reproach, the editorials still uphold that title of "Aristocrat", and the contents are such, that whenever a good brick-bat lands, there is a boquet of roses in the same issue to ease the shock. Maybe no inspiration, but inspiration costs like the dickens!

A word from the wise. You will notice that the real old hands at science-fiction aren't the ones who are complaining because the 1933 issues aren't like the 1926 ones. Most of them have or are trying to have collections. At least they have lists of what they want to collect. And they know that those first issues represented the cream of everything that had been published in the science-fiction field since way back in the last century. No wonder they were

good! In the first place, they had been hits at a time when readers had to be caught by sheer force of charm and power. In the second place, most of them were still recent enough to be not untimely. There must have been a great deal of worry in the offices when it became necessary to rely on current writers. You see, when you are publishing a brand-new story, you lose the advantage of knowing that some one (always excepting the author, his girl-friend, and his maiden aunts) thinks it is good and is willing to fight for that conviction. You have to do your own fighting or bow meekly and shove up another story in the hope that it will turn away the wrath to come. We want Wells, says the newest comer. Wells isn't writing science-fiction any more and if he were he'd charge a dollar a word or more for it. He's a BIG NAME and he knows it. Probably, if your finances are at all like those of most companies, one very short story by H. G. Wells, good or bad, would use up the editorial budget for the next six months. I'd much rather have six typical issues than one doubtful Wells. As for Verne, in addition to his being dead, there are probably only one or two of his untranslated short-stories that wouldn't be attacked from all directions as being out-of-date and impossible. Some want Burroughs. Quite aside from the fact that Burroughs is going steadily down-hill (he never did anything as good as "The Land That Time Forgot") he has incorporated himself, and wants the Earth and half the moon for every appearance in print. For the love of science-fiction, readers, please realize that a magazine that doesn't clear expenses obviously can't exist and one that doesn't make some money is practicably in the same boat! When the Saturday Evening Post with its circulation blows out of the mailbox, don't crab because AMAZING STORIES, *keeping the same size and the same schedule of publication,* that it has had from the beginning, doesn't print Merritt and Taine and Smith and Cummings exclusively!

I hope that some of that is what you wanted to say but didn't, because of modesty and politeness. I'll try, from this point on, to be briefer and to stick to brass tacks.

Page 183, Mr. Jensen. It seems to me that the question is what a teacher of quantum mechanics here at Union College would call trivial. No offense meant. The fact that a question is trivial may be of great importance. The outstanding example is the quantum-mechanical principle that it is trivial to enquire which of two electrons is which. They have no identity. And out of that fact comes mathematics that expresses forces of chemical bonding. Which leads in turn to the philosophical question of whether we should say that physics is becoming merely a branch of mathematics, or that mathematics is a specialized branch of physics. Certainly the concepts of space and number which unduly mathematics are every bit as real as the concepts of length, mass, and time which gave physics its start. But back to earth, I promised not to wander.

The "warmetod" (dying heat) law might be paraphrased as saying that every direction is downhill. When you see a hill, you don't express wonder that it has a top or that most of it is higher than the bottom. It's the nature of the beast. So with the universe. An infinite number of energy levels exists in which the universe as a whole or special parts of it may be found. Just one of these is the very special case that everything is as low as it can get—that the universe is dead. If you have *any* of the infinitely many others, natural changes will be such that the whole tends to slink down toward zero. If you can conceive of other universities, any or many of them may be at zero. No energy can leave them, so that it is impossible to be aware of their existence. In other words, if you didn't have energy above zero you wouldn't have a universe. You couldn't ask that question. I couldn't try to answer it by insisting that the question is trivial. You couldn't retort as you are (I hope) going to. And that would be too bad.

Comments in general: I prefer Mr. Campbell's space-warping to his molecular director. Thought of it myself once and gave it a name—"geodesic chaser." But I can't handle superphysics the way he can, so it never got beyond the thought. If mass and energy are manifestations of local warpings in Space-Time, I see no reason why concentration and manipulation of said mass and energy should not react on said Space-Time to alter its geometry. Whereupon all physical laws must be modified and even Einstein, who started by choosing a special geometry, is no longer all-holy. The velocity of light in our space (3 with ten zeroes centimeters per second) may change while distances do not. Possible speeds for massive bodies go up or down with it. And where that leads, only Mr. Campbell and Dr. Smith can tell you.

The vanadium pentoxide development in the contact process is very recent. While it is probably spreading quietly through the industry, it is not in any but the most recent texts, if in those. It is probably written up somewhere in the chemical literature of the past few years. The question is where. Probably where an error—if you can call it that—is of this sort, the reader learns more through the Discussions in the readers' columns, than through the mere statement in the story that "radicalite" replaced vanadium.

Certainly Mr. Amsbury should be the last to belittle anthropology! When psychology is admitted to Sigma Xi, anthropology has as many legs to stand on as a millipede. But why not let Mr. Amsbury define what he means by anthropology before we start to argue—if we do. Otherwise my vociferations would probably be trivial.

There are good old stories that most readers can't get at. A few—a very few—certainly cannot offend anyone who is fair-minded, even if he has read them. A man from New York or Chicago who has saved all his great-grandfather's library and all his ancestors' in both directions, doesn't like reprints because he's read them, he has them, and they're "in any public library." That last argument maddens me. Super-classics get reprinted, often in sadly altered forms. Poor books are little read and consequently never wear out. But the vast majority of books are those that are read over and over, until they are bundles of blank rags, though they are not literary enough to make reprinting pay. And except for the biggest libraries, science-fiction, new or old, very seldom reaches the shelves in the first place. That argument has less legs than an amoeba!

One last new argument for rough paper. I've stored my home-bound files in the cellar because mice like them too well in the attic and there's no room elsewhere. That cellar is *damp*. And where a filled paper would stick and stain and mildew, the porous finish that AMAZING STORIES uses can take it and like it. In fact, the chief danger to that sort of paper is probably dryness and not dampness. So, unless you use your old numbers to keep the children quiet while you read the new ones—in which case you don't merit consideration—you have no kick coming. Unless, of course, you live in a desert. I sympathize fully with all of you who have your files in the desert. Still, the annual rainfall averaged over the world is quite appreciable, so that you'll have to think of the thousands whose slick paper would stick and grow yeast, and remember your pioneer ancestors who gave you the desert to live in and the courage to adopt AMAZING STORIES when it was young and new. And now that beer is back again you can spare a little moisture for your magazines, if they show signs of withering away.

Originally, this letter was addressed to the Editor. "You" has been used indiscriminately to designate him, a specific reader, readers in general, and the world at large. But I've been absent for a long time, so that if he will just apply the blue pencil diligently he can find some spare space to give to the ISA. Maybe it will help make up for the support I owe them.

P. Schuyler Miller,
302 So. Ten Broeck St.,
Scotia, N. Y.

(Sometimes our comments on letters are criticized because the readers seem to see too much sameness about them. Then again we get some letters which require no comments. It has even been proposed to us to omit the headings of the letters, which we put in, so it is clear that the Editor of the Discussions certainly has not a happy time trying to please others, and being conscious of his own defects certainly does not manage always to please himself. So all we can say about this communication from so distinguished an author is that we feel that it can speak for itself. All we need say is that we are delighted to get so interesting a letter from so distinguished an author.—Editor)

A New Zealand Correspondent Who Wants Back Numbers of AMAZING STORIES

Editor, AMAZING STORIES:

All the 1932 AMAZING STORIES were fine. I don't believe you can improve the magazine. Don't alter cover, size, illustrations, paper, print, etc. I don't like Capt. Meek—his science is usually wrong. You can't call "Trappings" a science: it is an art. Don't be troubled by those other mags. They are helpless.

I detest authors who use Germans, Russians and Orientals. Now and again you publish a story that is original. I have written about six which I will send along some time. I am trying to get a complete set of A. S. from January, 1930. I have all Volume 7. If any reader has mags. which I want and he doesn't I will exchange them for N. Z. papers, stamps,

Austrian coins or back issues of A. S. of 1926, 1927, 1928 and 1929. Thanks.

S. M. de Vere White,
Pleasant Road, Glen Eden,
Auckland, New Zealand.

(You are quite mistaken about Captain Meek. He is one of our particularly favored authors, as far as our readers are concerned. Everyone likes his narrations. He is greatly liked by the Editors and his science is particularly good. We are not troubled by what you call "those other mags." We simply pursue our even way and feel that we have brought the Discussions Columns well to the fore. They are now a very important part of AMAZING STORIES and our readers correspond to our desire in sending us many excellent letters.—EDITOR.)

Remarks on Our Stories—The "High Level" Question—"The Ho Ming Gland"

Editor, AMAZING STORIES:

When will there be another story by Dr. E. E. Smith? I have forty-three issues of AMAZING STORIES and eleven issues of the Quarterly. In these I believe are most of the greatest science fiction stories ever printed. The three stories by Dr. Smith are, in my estimation, by far the best. Some of the best stories you have ever printed are: "The Metal Horde," "Piracy Preferred," "The Skylark of Space," "Skylark Three," "Spacehounds of IPC," "Solarite," "The Stone From the Green Star," "Tumithak of the Corridors," "The Metal Doom" and "The Lady of Light."

In the Quarterly, the best are: "White Lily," "Tani of Ekkis," "Dragons of Space," "The Black Star Passes," "Terrors of Arelli," "Islands of Space," "Seeds of Life," "Invaders from the Infinite," "The Ant With a Human Soul" and "Faster Than Light."

If these are not real stories, I don't know why. Other science fiction magazines have published masterpieces but none as good as Dr. Smith's.

Lately, AMAZING STORIES has not been keeping up its former high level, but if you will publish a real good story every few months, I won't kick.

In the February, 1933, issue of AMAZING STORIES you published a story entitled "The Ho-Ming Gland" by Malcolm Afford. This is exactly the same story as "The Gland Men of the Island" by Malcolm Afford which appeared in the January, 1931 issue of . . . . . I have been waiting for someone else to complain about this, but apparently no one noticed it. You have mentioned several times lately that you were overstocked with stories. If this is true, please don't reprint any more stories. If you must reprint stories then take them from the early issues of AMAZING STORIES. This story, although two years old, is not old enough to be used as a reprint nor is it good enough.

This is my first letter to AMAZANG STORIES although I have been a satisfied reader for years.

Lionel Dilbeck,
1834 Gold Street,
Wichita, Kansas.

(We hope soon to give a new story by Dr. Smith, but we are overstocked with stories and we wish to give a few reprints of some which are particularly desired by our readers. We often wish the magazine was twice its present size. Naturally we entirely disagree with what you say about our former higher level. You wish "a real good story" every few months—you will get several every month. After we had engaged the story by Malcolm Afford and before we had a chance to publish it, it appeared in another magazine as you say, under a changed title. We do not know who is responsible for this transaction which from the publishers' standpoint is definitely a dishonorable one. It has been noticed by others. As regards reprints, we wish to give reprints of the "Skylark Stories" and, as you may have observed, we have requested our readers to write us and let us know if they desire them. The "Ho-Ming Gland" was not a reprint. We had agreed to take it and we should have been left undisturbed in its possession. We will always be glad to get a letter from you.—EDITOR.)

Comments on Our Covers and Stories—Traveling to the Moon

Editor, AMAZING STORIES:

To start this letter off, I would like to say that the May cover is the best Sigmond has done since he started doing the covers. Not that I think he is as good as Morey, but it is his best looking cover. Nice assortment of stories in this issue and I rate them in the following order:

1. "Death Drum, The"
2. "Bronze Door, The"
3. "Martian and Troglodyte"
4. "Jeremiah Jones, Alchemist"
5. "Girl and the Glacier, The"
6. "Good Natured Pendulum, The"
7. "Three Suns of Eve, The"

and of course the Editorial was fine. I would like to see a sequel to "The Stone from the Green Star." This story really de-

serves one. It is the best story Jack Williamson has done since I have been reading your magazine. I got a big surprise looking through the Discussions and not seeing a letter by Jack Darrow or Forrest J. Ackerman. They usually have a letter or two apiece in each issue and in this issue—none.

By way of a question, when do you think the first trip to the moon will be made? I say the moon, because it is much closer than Venus or Mars. I would like to get this question answered to show my folks that I'm not the only one that thinks space ships will travel in the void. They think I am some kind of a freak because I believe in such stuff.

An appreciative reader of your magazine

Olon F. Wiggins,
730 28th Street,
Denver, Colorado.

Perhaps if Mr. Williamson reads your letter, he will give us a sequel to "The Stone from the Green Star." Personally, we do not believe that man will ever reach the moon. For your comfort we can assure you that people that are now living did not at first believe in the phonograph and scouted the idea of traversing the air in a heavier-than-air flying machine. The writer of these lines many years ago wrote an article on horseless carriages and in it as an interesting example of what could be done cited a trip of a thousand miles with the expenditure of a barrel and a half of gasoline as an impressive demonstration.—EDITOR.)

A Sprightly Letter of Criticism From a Friend

Editor, AMAZING STORIES:

The honorable Franklin W. (Werewolf) Ryan's good natured, intelligent, smoothly subtle reprisal printed in the July issue has set my own few drops of Irish blood to a seething boil. In a few choice words, I am about to answer Mr. Ryan and strive to completely quash his favorable attitude toward that odoriferous offshoot of science fiction, spook fiction.

I do not object to weird fiction in its place; please let that be primarily understood. I believe that weird fiction is to science fiction what English country sauce would be to a plate of cold roast beef. It supplies that strangely irritating, often horrifying, yet sometimes pleasing flavor; it is the finishing touch (and that may be interpreted, perhaps, with the word "finishing" heavily underscored) to an otherwise incomplete dish.

HOWEVER—I do object to stories of this type in a conservative, thoroughly respectable, ultra-scientific publication like good old AMAZING STORIES. In my opinion, it is like a slow working catalyst or acid that disintegrates the material upon which it is working. How long will it be before the high standard set by authors such as David H. Keller, S. A. Coblentz, Edward Elmer Smith and the now deceased Garret Smith, not forgetting to mention Abraham Merritt, succumbs before the paralyzing onslaught of fiction submitted by the type of authors who write for sensational thrill magazines. Remember, of course, that I am not striving to slight Mr. Ryan. He is capable of better things. He possesses a refreshing style of writing, similar in spots to that of the mighty Keller and avoids many of the common mistakes of other, even more experienced writers. I take it for granted, of course, that Mr. Ryan has but recently begun to write.

As regards Mr. Ryan's assumption of my belief in a soul, supernatural or otherwise, I must say that I most emphatically do not. My attitude toward the subject is one of mild toleration, though I have been known to put forth arguments against its existence. However, since the subject touches on religion, I try most manfully to avoid it. Still, at times as I have said, I put my two cents in, to quote a homely, but appropriate expression.

Enough for that. Now as to the magazine.

Your stories this month were exceptionally well done. Naturally, my vote for the best story of the month goes to Dr. Keller's "Unto Us A Child Is Born". Oh Fate, when will come the day when that genius writes a bad story? Touching upon the pathos and trials of a mechanized world in which mother love is dead yet lingers on in the hearts of a few brave souls, it fairly brought tears to my hardened old eyes. I don't dare write any more about it; the typewriter might start suddenly to sob.

My only comment on the cover for the July issue is a long drawn out:—OOOOHHHHHHHHH!!!!!, followed by a stentorian guffaw. You have four objects in the picture entirely unrelated to each other and entirely out of their elements. Imagine a fish, a planet, a monument and a spear-like projectile consorting together in greatest happiness! Otherwise, the cover was arty enough. I suppose that things absolutely scat-

tered helter-skelter on a colored page is considered art. After all, what is a poor downtrodden mortal to do? The monument was faithfully executed, the planet true to life, although the projectile was a bit artificial and the fish looked as if it hadn't had a square meal in days. Since when has the color of space become a deep earthly blue, spotted here and there with a few gasping stars? You don't know? My word!

John B. Michel
1094 New York Avenue,
Brooklyn, N. Y.

(Judging by the text of this letter, we should imagine that the writer has more than a few drops of Irish blood in his veins, and curiously enough he is answering a correspondent who has a preeminently Irish name. Dr. Keller will be pleased at your comments. He is a writer particularly experienced in the type of story which we are publishing and we are always glad to hear words of appreciation bestowed on him. What we particularly notice in his work is that he has the knack of giving a most impressive end to his stories, perhaps in only a few words, and the power of doing this is peculiarly the faculty of a short story writer.—EDITOR.)

An Austrian Letter Criticising AMAZING STORIES—An Erroneous Statement About "The Good-Natured Pendulum"

Editor AMAZING STORIES:

I would like to enter your "Discussions" from a purely European viewpoint. The new covers are very nice, much better than the old ones. I am a subscriber to the Monthly and Quarterly since the beginning and can only congratulate you on the good choice of the published stories. You will therefore excuse a critic *re* your last numbers. Please stop these scaring headlines you used in the last two numbers, which only interrupt the stories. We read all for entertainment and are not forced to read only headlines. The second criticism goes for the new American style of the so-called caveman-stories which are very nice for a ladies journal but have nothing to do with science fiction. I refer to "The Memory Stream," "Martian and Troglodyte," "The Girl and the Glacier." "The Last Earl" was for a long time your worst choice, it has nothing to do with a highclass magazine and was badly written. "The Good-Natured Pendulum" has excellent style but contains not a bit of science and ought to have been eliminated. The much criticised "Delilah" stands on the verge.

I hope you will excuse my English and please don't forget to abandon the headlines.

Oscar Horowitz,
Wien 1, Henrichsgasse 3
Vienna, Austria.

(It will interest you to know that we have determined to give up the use of cross-headings. We do not see how the "Girl in the Glacier" which has been very much admired, can be called a cave-man story. Personally, we think that the stories about the early races of mankind are very good and we would feel that we lost a great deal if we abandoned them. You are not the only person who has said that the "Good Natured Pendulum" contains no science. It is based on the mathematical relation of length to periodicity. The perio of oscillations varies with the square root of the length. If a pendulum is four feet long it will take twice as long for an oscillation as will a pendulum one foot long. If you will look into a physics manual you will find that the author of this story had a pretty good idea about the science of the pendulum.—EDITOR.)

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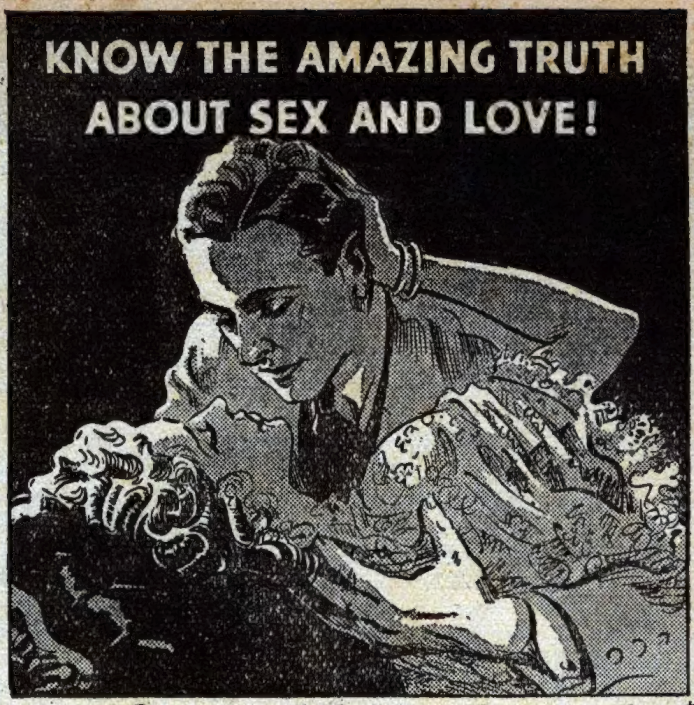

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